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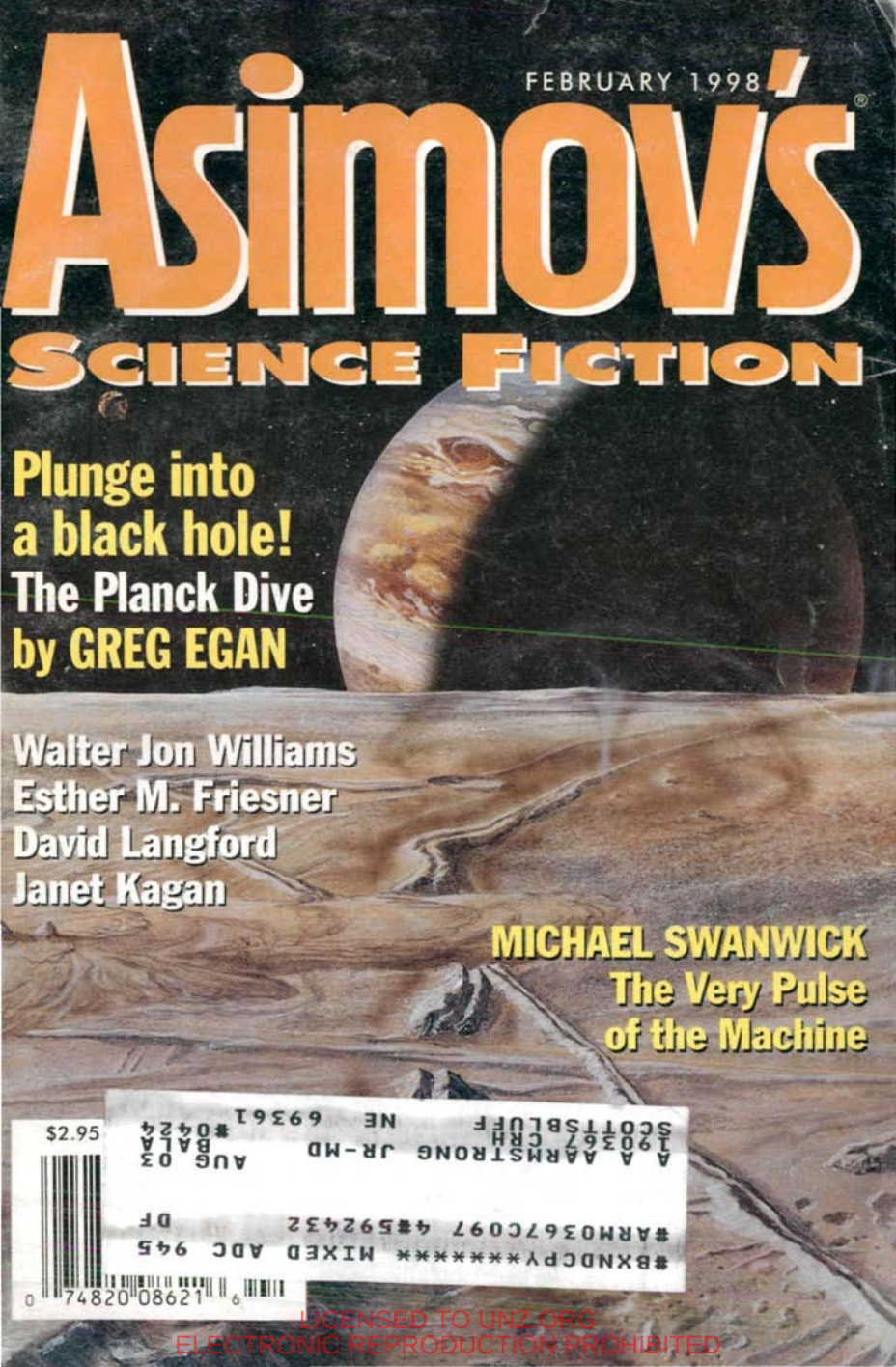

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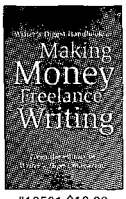

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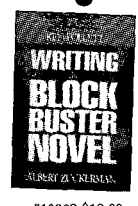

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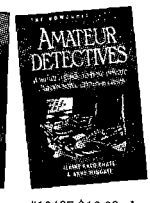

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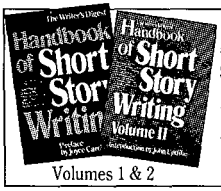

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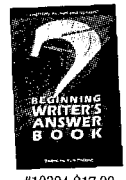

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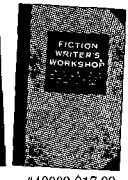

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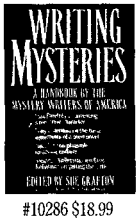

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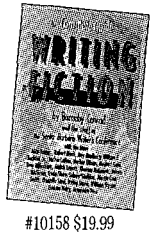

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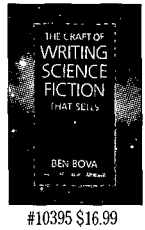

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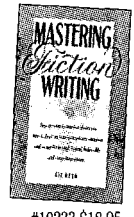

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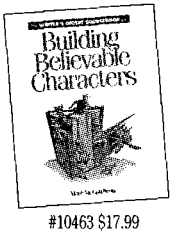

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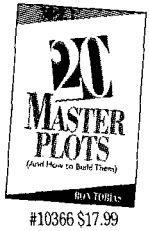

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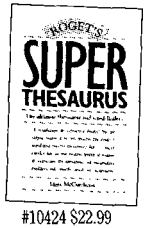

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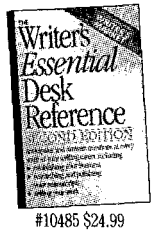

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Vol. 22 No. 2 (Whole Number 266)
February 1998

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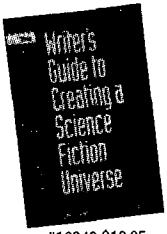

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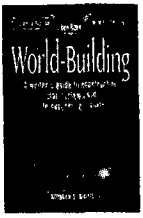

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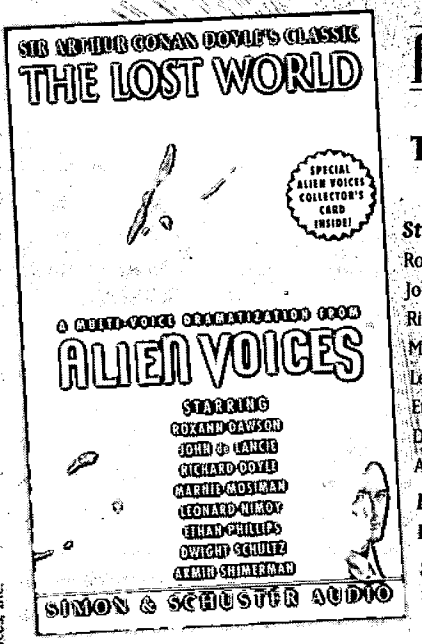

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REFLECTIONS

by Robert Silverberg

TO CLONE OR NOT TO CLONE

When the revelation came last year that the successful asexual creation of a lamb cloned from an adult sheep had taken place, it was inevitable that a great flap over the prospect of human cloning would immediately begin. (I'm speaking of the work done by Dr. Ian Wilmut of Scotland's Roslin Institute, who announced in February 1997 that he had produced a lamb that he named Dolly by scraping some cells from the udder of a six-year-old ewe and inserting them into a specially prepared egg cell from another female sheep.)

Any startling scientific advance, these days, is certain to draw instant harsh criticism from the leaders of the religious right who see the work of the devil, apparently, in most sorts of meddling with the natural order of things as they understand it, particularly where genetic or biological matters are concerned—and from the godless but equally fundamentalist left, which finds hidden elitist/fascist agendas in the very same scientific breakthroughs that arouse the wrath of the pious. The left is easily terrified, also, by anything that might tend to increase the influence that Scientists—those cold-eyed, amoral, environment-devouring folks in laboratory smocks—already have over everyday life.

And so, as follows the day the night, there came within a few days President Clinton's announcement of a ban on government-sponsored human-cloning research. The fact that there didn't seem to be any government-sponsored human-cloning research going on at the moment did not seem to be relevant. President Clinton has demonstrated remarkable skill at telling the American public what it would like to hear—"pandering" is the word that his harsher critics use—and he was able to pick up quick political points by letting the devout citizens back there in the boondocks know that this particular genie would not be let out of the bottle, by gum, at least not with taxpayer money.

But of course it will. Technologies, once developed, don't go away, though they can be forced underground by sufficiently persistent persecution. The President's lightning-fast ban, satisfying though it may have been to the anti-science factions that have always been such a major force in American politics, will not last. Either here or abroad, cloning research will continue. And, I'm pretty sure, we will indeed see laboratory-spawned cloned humans brought forth some time in the twenty-first century.

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Does that possibility scare you? Does it immediately fill your mind with images out of old horror movies? Do you envision legions of Frankenstein monsters coming forth from sinister Transylvanian cloning labs? Do you imagine that the evil megabucks-laden overlords of Wall Street will create a perpetual master class by diverting a few of their millions into the creation of cloned replicas of themselves? And do you, therefore, rejoice that the President has taken this bold step to keep such dire things from happening?

Not me. Maybe I've been reading science fiction too long, but I find myself unterrified by the likelihood of human cloning and irritated by Mr. Clinton's off-the-cuff response to the Dolly event. What seems much more worrisome to me than any number of billionaire clones let loose in the land is the fear of science that underlies the anti-cloning hysteria. (And hysteria is what it is.)

The President is toying with the same forces, far from extinct in our society and possibly even gaining strength, that once caused so much trouble for Vesalius, Copernicus, and Galileo. His unthinking demagoguery may have been good politics in this nation of largely ignorant and superstitious people, but otherwise was a needless—and dangerous—intervention in a situation where the best response would have been no response at all.

To my way of thinking, no good reason presents itself for govern-

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ment involvement in human cloning at all, one way or the other. A government ban on research that isn't happening is silly and distasteful and rash. On the other hand, government funding of such research, which so far as I know has never been contemplated anyway, seems unnecessary and likely only to entangle the citizenry in unfruitful emotional debate. Dr. Wilmut of the Roslin Institute *is* a government employee, though not here; but what he was trying to do was simply to improve the quality of Scottish livestock. The scientists who ultimately will produce the first human clones will be operating in the private sector.

And they will be doing it, I suspect, not to meet the vile needs of ego-driven tycoons, but simply to see whether the thing can be done. They will be expanding the frontiers of the possible, in other words—the same thing that scientists have been trying to do since, well, the days of Vesalius and Galileo and Copernicus. The Dolly research has provided the first indication that mammals can be produced by fiddling around with genetic material in the laboratory. Now that production can, apparently, be managed with sheep, someone is bound to want to find out whether it can be done with humans. And will. But not for ghastly Frankensteinian motives, only out of sheer scientific curiosity.

I can certainly see the scientific value of cloning research in general, which has very little to do with making identical copies from a single genetic matrix and a great deal to do with making precise genetic changes in cells. The copying factor is incidental. The goal might be to create, through techniques of genetic manipulation, a race of sheep with superior wool, or cows that give more copious milk, or laboratory rats that have a special susceptibility to a particular disease in need of study. Once a sheep, cow, laboratory rat, or whatever that has the sought-after genetic qualities has been designed, it could then be reproduced through cloning to make sure that all its descendants have those identical qualities. The messy intervention of alien genetic material from a biological father, potentially disruptive to the primary goal, would thus be avoided.

But I'm not at all sure that there's any point to the cloning of *humans,* other than whatever scientific knowledge might accrue from bringing the stunt off. Doubtless there can be some practical benefits of having one's physical self duplicated by asexual means, but they aren't immediately apparent to me.

I can, of course, imagine some. Women who have no desire for contact with men, even to the extent of having male gametes mingling with their ova by way of artificial insemination, would be able to bring forth cloned daughters, genetically identical to themselves. Childless heterosexual couples in which the male is sterile could also have children by cloning without the entry of an outsider's genes into

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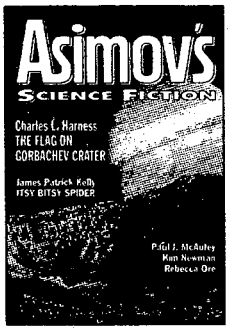

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the family unit, which artificial insemination would involve. I see no great harm in any of that. People who want children would be able to have them. The children would presumably be raised in their mothers' homes, not in soulless crèches out of Huxley's *Brave New World*. If such a practice were to become universal, of course, it would mean an end to the evolution of the human race, but even if human cloning were readily available I doubt that it would lead to any substantial decline in the predilection men and women have for making babies together the old-fashioned way.

More frightening prospects exist, of course. Some megalomaniacal dictator might want to establish laboratories to create a legion of cloned warriors—parentless, quasi-synthetic beings wholly dedicated to serving the purposes of the state. He might, if sufficiently megalomaniacal, want to fill his court with replicas of *himself*. (I've already written that one, incidentally. It was called "In the Clone Zone" and *Playboy* published it seven or eight years ago.) Or vast bordellos could be stocked with cloned prostitutes replicating highly desirable physical types. None of these are pretty notions, but they're not high-order probabilities, either, considering that it would take exactly as long to rear a human clone

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to maturity as the maturation of normally conceived humans does today, and there would be no guarantees that the clones would turn out as desired.

We also have to reckon with the class-warfare issue—the fear that a wealthy elite will callously propagate itself through cloning, while individuals of lesser economic power will be doomed to remain singletons. I suppose that might happen, if cloning yourself for a few million dollars were to become a real option. The Daddy Megabucks types might just want to stock up on a few extras of themselves. (Or to stockpile their children's DNA so that they could be conveniently regenerated if anything nasty should happen to them. Theodore Sturgeon dealt with that theme all the way back in 1962 in a touching story called "When You Care, When You Love.")

If such a display of raw economic power upsets you, you might consider that Daddy Megabucks is *at this very moment* living in a house much bigger than yours, eighty-seven rooms set on four hundred acres of elegantly landscaped terrain. This, too, may seem unfair to you, crammed as you are into some dismal little hut, but people with lots of money have the ability to do such things, and when you try to prevent it you end up with something like the Soviet Union. Before you get unduly excited over the tycoons who have themselves cloned, give some thought to the fact that no one's personality or intellectual capabilities can ever be duplicated through cloning, only the genetic makeup. The tycoon's clones will look just like him, yes, but they're apt to be just as unpredictable and rebellious and generally annoying as the children of rich people that come into being the usual way often turn out to be.

The test-tube creation of the sheep named Dolly by Ian Wilmut is an astounding scientific breakthrough. Other cloning experiments are already underway in many laboratories and we will soon be seeing the reports. Although the cloning of mammals is still in its earliest stages, I think it's safe to say that the technology for carrying it out is already in place. But nobody, at the moment, is contemplating the cloning of humans. That will probably come, once the immense technical and social problems have been worked out, because our history shows that once a thing is technically possible it usually gets to happen. The current outcry against human cloning, though, is premature and disturbing, carrying with it the potential for anti-scientific witchhunts of the ugliest sort. One cloned sheep does not mean the immediate advent of cloned humans; and cloned humans, if they ever do arrive, may not be as terrifying a concept as they have been made to seem in the current debate. As usual, the main thing we have to fear in all this is fear itself. ●

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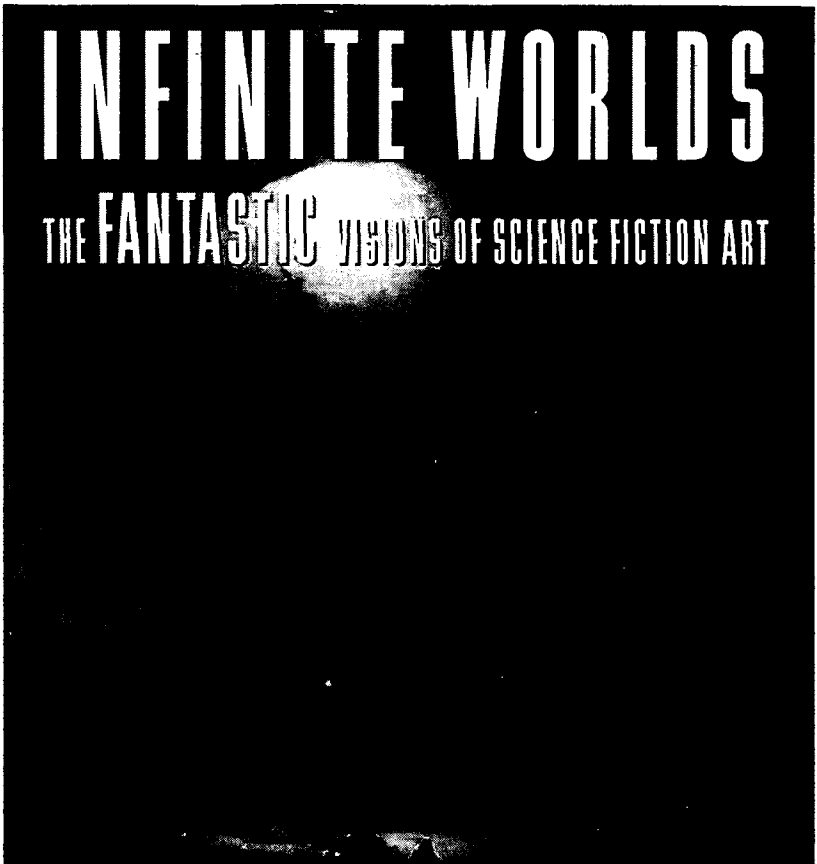

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LETTERS

Dear Mr. Dozois,

I am writing to express my heartfelt thanks for "Blood and Judgment," John Brunner's last story.

I have long been a John Brunner fan. In my personal hard copy library, I have: *Quicksand, Stand on Zanzibar, The Wrong End of Time, The Sheep Look Up, From This Day Forward, The Stone That Never Came Down, Total Eclipse, The Shockwave Rider, Players at the Game of People,* and *The Crucible of Time.*

I've also enjoyed his short stories over the years. I honestly think this very last story may be his best ever.

Jack E. Garrett
Jamesburg, NJ

Dear Mr. MacLeod,

I very much enjoyed your poignant and evocative story "The Roads," in the April 1997 issue of *Asimov's.* It brought back memories of stories I had heard from my father and my uncle, both of whom served in the US Army in World War I.

I was momentarily brought to an abrupt stop in my reading, however, by the following sentence: "Sapper sounded like a corruption, a diminution—as did the actual job, which was the same one he'd done in peacetime, of supervising the construction of roads." In my frame of reference, a sapper was a person who helped lay explosives, particularly digging the tunnels into which Bangalor torpedoes were placed, to blow up trenches and fortifications.

So I looked it up. Mindscape's *Complete Reference Library*'s dictionary says: "1. A military engineer who specializes in sapping and other field fortification activities. 2. A military engineer who lays, detects, and disarms mines." *The American Heritage Dictionary* says: "A military engineer, especially in the British armed forces. [Originally one who digs saps (fortifications).]" *Webster's New Collegiate Dictionary* says: "One who saps; *Mil.*, a member of an engineer unit trained to execute sapping. See *sap, v.t. 3*: "*Mil.* To operate against, or pierce, by saps. *Saps, n. Mil.* An extension of a trench dug from within the trench itself; esp., one dug from the attacker's lines to a point beneath the enemy's works." *Funk & Wagnalls New College Standard Dictionary* says: "One who or that which saps; specifically, a soldier employed in making trenches, tunnels, and underground fortifications."

No mention of roads anywhere, although I do realize that the

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British usage may have been different. I thought this might be of interest to you, so I decided to write.
Sincerely,

Jack E. Garrett
Jamesburg, NJ

The immediate impetus to writing "The Roads" came from reading the novel Birdsong *by Sebastian Faulks, which I heartily recommend. I also rather hoped, when I started out, that the whole idea would lead to something bigger, instead of which I ended up with one of my shortest short stories.*

As to sappers, I don't remember specifically looking the word up. Doing so now, the normal dictionaries I have don't really say much other than "military engineer." The Encyclopedia Brittanica, *however, says "in modern armies, sappers provide three functions . . . they provide tactical support on the battlefield . . . they build major support facilities such as airports, supply roads, fuel depots and barracks . . . and they are assigned to additional tasks such as the disarming and disposal of mines . . ."*

Certainly, at least in this definition, roads do crop up as at least part of the work that might be expected of a sapper. Whether it would have been used in quite the context that I put it is a different matter . . . .

—Ian Macleod

Dear Sir:

I was a latecomer to *Asimov's*, having subscribed a mere three years ago, but I have found reading *Asimov's* to be a mental refuge amidst the hustle of everyday life and for that I say *Thanks!* This magazine has touched me in ways I could not have expected when I subscribed and I have found the story telling to be extraordinary at times and good in the remainder.

I just wanted to compliment Bill Johnson on "We Will Drink A Fish Together . . ." in the May issue. What a story! Superb characterization and his evocative, yet efficient style has produced a novelette that will surely get my vote in the next readers' poll. I wonder if Mr. Johnson is planning to write a book based on the premise he used? If not, maybe he would reconsider if enough of *Asimov's* readers encourage him to do so. Is anybody else with me out there? Thank you for the "island of make-believe" you allow me to visit with each issue.
Your reader and supporter,

Russell Hill
Memphis, TN

Dear Editors,

I do not like writing letters. In fact, this is my first letter to a magazine. I subscribed to *Asimov's SF* a year ago (as soon as I moved to America from Latvia), basically because of Dr. Asimov's name. I am his devoted fan from the moment I began reading science fiction. I just love the way this man wrote and thought, and though, unfortunately, I did not get a chance to read the magazine while he was editorial director, I hoped that the spirit of Good Doctor was still present on the pages of the magazine.

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I was glad to discover that I hadn't made a mistake in subscribing to your magazine. I have read many science fiction magazines, but *Asimov's* definitely takes the first prize for delivering the best science fiction stories of our time. I enjoy every issue of this wonderful publication; I relish every editorial by Robert Silverberg. It is too bad that your Letters section is not very consistent. I consider it a very valuable source for exchanging ideas and thoughts with readers of *Asimov's*.

Your May issue made me write this letter. It was the greatest and most interesting I have read so far, with the highest level of science fiction writing. Especially I enjoyed "In the Furnace of the Night" by James Sarafin and "We Will Drink a Fish Together . . ." by Bill Johnson. Both were very entertaining; however, the story that influenced me the most was "Fortune and Misfortune" by Lisa Goldstein. It is truly an excellent piece of science fiction. I got so scared when I read the magic words of misfortune that I could not stop until I finally read the words for fortune (it is a good thing they were there). I was distressed, however, that your On Books section was missing (especially since I was waiting for a review of Gregory Benford's *Foundation's Fear*).

Thank you for keeping the magazine so great. And for my selfish purposes, I hope you will prosper for many years to come.

Ilya Kats
Middle Village, NY

Greetings,

I'd like to thank *Asimov's* (and Cynthia Ward), for the inclusion of her story "On the Last Day of School" in the May issue. Ms. Ward says in a fairly short space a number of poignant and profound things about nature, custom, and that troublesome time of growing up.

The story occurred at a fairly profound time of my own life. For the last couple of months, I've been working to build a support group for folks who are dealing with gender issues and also happen to be blind—and their friends. When a member of a group usually thought of as being nonsexual to begin with, actually has issues about sexuality/gender, most folks tend to relegate the problem to the blindness itself.

This may not seem terribly relevant to the story I'm attempting to praise, but to me ". . . Last Day" rang closely and very personally. I hope Ms. Ward's first story for *Asimov's* won't be her last.

Very sincerely,

Glynda Shaw
Bellingham, WA

Sir/Madam:

I would like to convey my opinion about John C. Wright's story "Guest Law." It is, in my opinion, the best piece I ever read in your publication. In fact I read it three times savoring every word of it. It is up on the level of the best works by Asimov, Clarke, or Silverberg.

"Words and Music" was very good too. On the other hand I think

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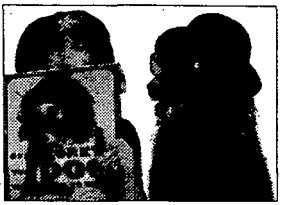

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you have wasted forty-four pages with "Izzy and the Father of Terror." One has to be high on drugs to enjoy it. In fact I quit reading it after about five pages.

Question: do you ever receive letters that are not gushy? I suspect that you do but you simply ignore them.

Sincerely,

Zoltan J. Janosi
Grosse Pointe Woods, MI

Dear Editor,

I don't get it. I like it, but I still don't get it. Is the author a secret lab combination of Tom Robbins, Alan Dean Foster, Ray Bradbury? I dunno. I have a bad habit of reading your zine in the tub, and have already soaked this issue, but I think this is a story I need to reread every few years, knowing the turns without explicitly remembering them. Do you know of any anthologies with Mr. Fintushel's work?

Thanks.

aurienne
—from the Internet

Dear *Asimov's* staff:

This is the first time I've ever written to your esteemed magazine, though I've been reading avidly for nigh on fifteen years now. The reason I am writing at this late date is to express both my pleasure with and concern over Ms. Lisa Goldstein's "Fortune and Misfortune," which appeared in the May 1997 issue. While her "drawing in" tactic of incorporating the reader in her story, by making him/her share the fate of the main character is quite engaging, it is with some dismay that I must report the peril in printing such powerful words in the tale. You can imagine my horror when I received a frantic phone call at a very unholy hour from a friend who had lost his copy of the May issue, but had not finished Ms. Goldstein's story! He'd just gotten PAST the part where the "words of misfortune" are recited, and already a sinister change had come over his life. He tearfully reported to me that he had been run over earlier that day by a produce vendor's cart, splattering him with tomato innards and forever ruining his nice jacket. I can only surmise that a similar fate befell another friend of mine. She was unfortunately crushed to death by a falling tree, her copy of the May issue open to that fateful place on her lap, before I could talk to her.

However, there is an upside to this tragedy. Having been forewarned by these incidents, I myself managed to possess the quickness of wit to avoid reading the words of misfortune, and instead made it all the way to the end of the piece, there sighing with great relief and giggling to myself as I read the counter-spell. Its positive effects have already been felt in my life; I just today received a large tax refund. I expect further boons from my quick thinking, and in fact have already sent *Asimov's* one of my latest short stories with great confidence and hope.

In summary, I feel it only my

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duty of conscience to point out the peril embedded in Ms. Goldstein's story, albeit a very well-written and moving piece of "fiction." One must learn from the example of that guy in the Monty Python skit who wrote down the funniest joke in the world, only to die laughing along with anyone else who read it. Please, I beg of you, take care in the future!

—laughingly yours, and thanks for a consistently enjoyable magazine

Mark Baxter
Waltham, MA

Dear Mr. Silverberg,

I have just read your column in the July '97 *Asimov's*. I hope this missive eventually reaches you, even if it has to travel part of the way by mule.

I too have long been a fan of thesaurii. To me, one of the more fascinating things about *Roget's Thesaurus*, is its attempt to explicate the underlying structure of meaning in the English language as a whole. Just as cosmologists are beginning to determine that the universe is "lumpy" and not uniform in its structure, so too is the English language "lumpy" and not merely a uniform sea of words. In a very real sense a thesaurus is an atlas to the world of knowledge, culture, and understanding that a language represents.

It is indeed unfortunate that old and honorable words have been omitted from more recent editions of the thesaurus merely in an effort to produce (in the words of the preface to the 1946 Crowell edition) "a thoroughly up-to-date reference work for modern needs and modern demands." It is as if the structure of the English language has been arbitrarily limited by the physical requirements of print and book. It is as if we have enslaved the scope of the mind of man to the limitations of the earth. Now that the computer is readily available as a tool for managing the physical demands of words and paper, perhaps the language and the mind can be allowed to grow once more.

David A. Bridger
St. Louis, MO

Asimov's Science Fiction is published monthly (eleven issues, one being a double) by Dell Magazines, a division of Crosstown Publications, 1270 Avenue of the Americas, New York, NY 10020; shareholders owning 1 percent or more are Penny Press Inc., Selma, William, Andrew, John, James, and Peter Kanter, 6 Prowitt St., Norwalk, CT 06855-1220. There are no mortgages or other security holders. Total average copies printed: 57,379; 42,528 total paid circulation.

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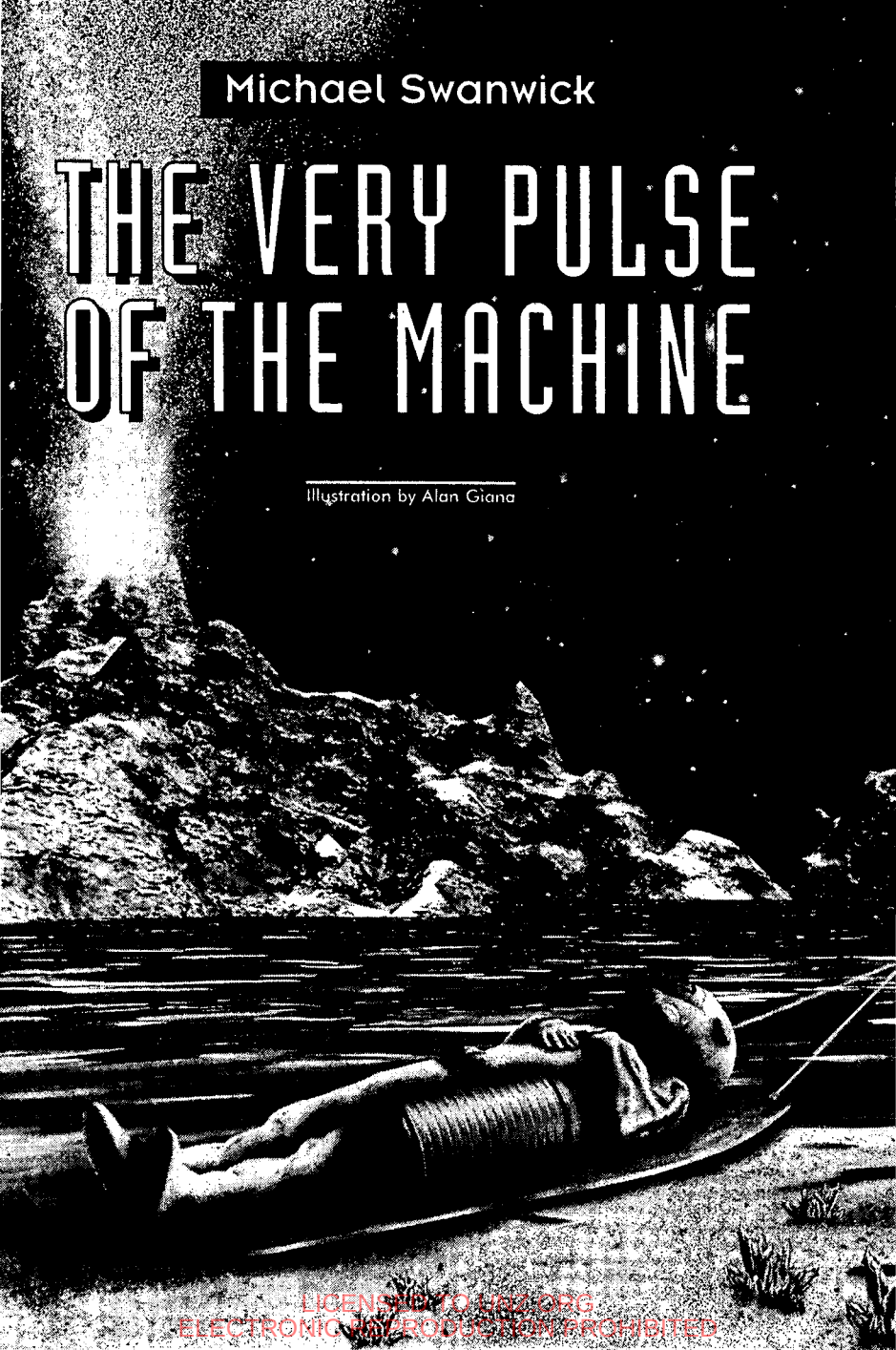
Michael Swanwick

THE VERY PULSE OF THE MACHINE

Illustration by Alan Giana



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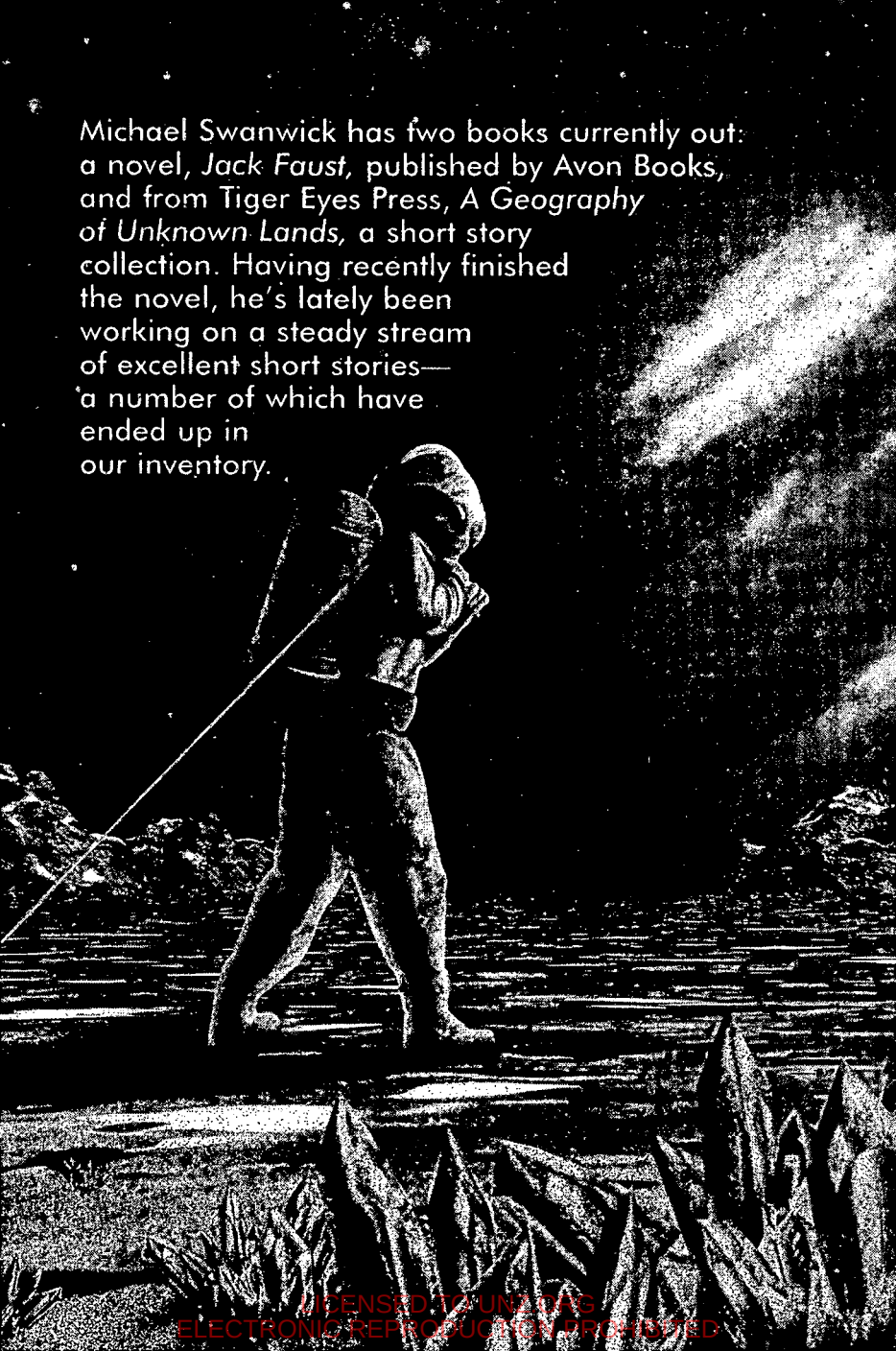
Michael Swanwick has two books currently out: a novel, *Jack Faust*, published by Avon Books, and from Tiger Eyes Press, *A Geography of Unknown Lands*, a short story collection. Having recently finished the novel, he's lately been working on a steady stream of excellent short stories— a number of which have ended up in our inventory.

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Click.

The radio came on.

"Hell."

Martha kept her eyes forward, concentrated on walking. Jupiter to one shoulder, Daedalus's plume to the other. Nothing to it. Just trudge, drag, trudge, drag. Piece of cake.

"Oh."

She chinned the radio off.

Click.

"Hell. Oh. Kiv. El. Sen."

"Shut up, shut up, shut up!" Martha gave the rope an angry jerk, making the sledge carrying Burton's body jump and bounce on the sulfur hardpan. "You're dead, Burton, I've checked, there's a hole in your faceplate big enough to stick a fist through, and I really don't want to crack up. I'm in kind of a tight spot here and I can't afford it, okay? So be nice and just shut the fuck up."

"Not. Bur. Ton."

"Do it anyway."

She chinned the radio off again.

Jupiter loomed low on the western horizon, big and bright and beautiful and, after two weeks on Io, easy to ignore. To her left, Daedalus was spewing sulfur and sulfur dioxide in a fan two hundred kilometers high. The plume caught the chill light from an unseen sun and her visor rendered it a pale and lovely blue. Most spectacular view in the universe, and she was in no mood to enjoy it.

Click.

Before the voice could speak again, Martha said, "I am not going crazy, you're just the voice of my subconscious, I don't have the time to waste trying to figure out what unresolved psychological conflicts gave rise to all this, and I am *not* going to listen to anything you have to say."

Silence.

The moonrover had flipped over at least five times before crashing sideways against a boulder the size of the Sydney Opera House. Martha Kivelsen, timid groundling that she was, was strapped into her seat so tightly that when the universe stopped tumbling, she'd had a hard time unlatching the restraints. Juliet Burton, tall and athletic, so sure of her own luck and agility that she hadn't bothered, had been thrown into a strut.

The vent-blizzard of sulfur dioxide snow was blinding, though. It was only when Martha had finally crawled out from under its raging whiteness that she was able to look at the suited body she'd dragged free of the wreckage.

She immediately turned away.

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Whatever knob or flange had punched the hole in Burton's helmet had been equally ruthless with her head.

Where a fraction of the vent-blizzard—"lateral plumes" the planetary geologists called them—had been deflected by the boulder, a bank of sulfur dioxide snow had built up. Automatically, without thinking, Martha scooped up double-handfuls and packed them into the helmet. Really, it was a nonsensical thing to do; in a vacuum, the body wasn't about to rot. On the other hand, it hid that face.

Then Martha did some serious thinking.

For all the fury of the blizzard, there was no turbulence. Because there was no atmosphere to have turbulence *in*. The sulfur dioxide gushed out straight from the sudden crack that had opened in the rock, falling to the surface miles away in strict obedience to the laws of ballistics. Most of what struck the boulder they'd crashed against would simply stick to it, and the rest would be bounced down to the ground at its feet. So that—this was how she'd gotten out in the first place—it was possible to crawl *under* the near-horizontal spray and back to the ruins of the moonrover. If she went slowly, the helmet light and her sense of feel ought to be sufficient for a little judicious salvage.

Martha got down on her hands and knees. And as she did, just as quickly as the blizzard had begun—it stopped.

She stood, feeling strangely foolish.

Still, she couldn't rely on the blizzard staying quiescent. Better hurry, she admonished herself. It might be an intermittent.

Quickly, almost fearfully, picking through the rich litter of wreckage, Martha discovered that the mother tank they used to replenish their airpacks had ruptured. Terrific. That left her own pack, which was one-third empty, two fully charged backup packs, and Burton's, also one-third empty. It was a ghoulish thing to strip Burton's suit of her airpack, but it had to be done. Sorry, Julie. That gave her enough oxygen to last, let's see, almost forty hours.

Then she took a curved section of what had been the moonrover's hull and a coil of nylon rope, and with two pieces of scrap for makeshift hammer and punch, fashioned a sledge for Burton's body.

She'd be damned if she was going to leave it behind.

Click.

"This is. Better."

"Says you."

Ahead of her stretched the hard, cold sulfur plain. Smooth as glass. Brittle as frozen toffee. Cold as hell. She called up a visor-map and checked her progress. Only forty-five miles of mixed terrain to cross and she'd reach the lander. Then she'd be home free. No sweat, she thought. Io was in tidal lock with Jupiter. So the Father of Planets would stay

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glued to one fixed spot in the sky. That was as good as a navigation beacon. Just keep Jupiter to your right shoulder, and Daedalus to your left. You'll come out fine.

"Sulfur is. Triboelectric."

"Don't hold it in. What are you really trying to say?"

"And now I see. With eye serene. The very. Pulse. Of the machine." A pause. "Wordsworth."

Which, except for the halting delivery, was so much like Burton, with her classical education and love of classical poets like Spenser and Ginsberg and Plath, that for a second Martha was taken aback. Burton was a terrible poetry bore, but her enthusiasm had been genuine, and now Martha was sorry for every time she'd met those quotations with rolled eyes or a flip remark. But there'd be time enough for grieving later. Right now she had to concentrate on the task at hand.

The colors of the plain were dim and brownish. With a few quick chin-taps, she cranked up their intensity. Her vision filled with yellows, oranges, reds—intense wax crayon colors. Martha decided she liked them best that way.

For all its Crayola vividness, this was the most desolate landscape in the universe. She was on her own here, small and weak in a harsh and unforgiving world. Burton was dead. There was nobody else on all of Io. Nobody to rely on but herself. Nobody to blame if she fucked up. Out of nowhere, she was filled with an elation as cold and bleak as the distant mountains. It was shameful how happy she felt.

After a minute, she said, "Know any songs?"

Oh the bear went over the mountain. The bear went over the mountain. The bear went over the mountain. To see what he could see.

"Wake. Up. Wake. Up."

To see what he could—

"Wake. Up. Wake. Up. Wake."

"Hah? What?"

"Crystal sulfur is orthorhombic."

She was in a field of sulfur flowers. They stretched as far as the eye could see, crystalline formations the size of her hand. Like the poppies of Flanders field. Or the ones in *The Wizard of Oz*. Behind her was a trail of broken flowers, some crushed by her feet or under the weight of the sledge, others simply exploded by exposure to her suit's waste heat. It was far from being a straight path. She had been walking on autopilot, and stumbled and turned and wandered upon striking the crystals.

Martha remembered how excited she and Burton had been when they first saw the fields of crystals. They had piled out of the moonrover with laughter and bounding leaps, and Burton had seized her by the waist and waltzed her around in a dance of jubilation. This was the big one, they'd

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thought, their chance at the history books. And even when they'd radioed Hols back in the orbiter and were somewhat condescendingly informed that there was no chance of this being a new life-form, but only sulfide formations such as could be found in any mineralogy text . . . even that had not killed their joy. It was still their first big discovery. They'd looked forward to many more.

Now, though, all she could think of was the fact that such crystal fields occurred in regions associated with sulfur geysers, lateral plumes, and volcanic hot spots.

Something funny was happening to the far edge of the field, though. She cranked up her helmet to extreme magnification and watched as the trail slowly erased itself. New flowers were rising up in place of those she had smashed, small but perfect and whole. And growing. She could not imagine by what process this could be happening. Electrodeposition? Molecular sulfur being drawn up from the soil in some kind of pseudo-capillary action? Were the flowers somehow plucking sulfur ions from Io's almost nonexistent atmosphere?

Yesterday, the questions would have excited her. Now, her capacity for wonder was nonexistent. Moreover, her instruments were back in the moonrover. Save for the suit's limited electronics, she had nothing to take measurements with. She had only herself, the sledge, the spare airpacks, and the corpse.

"Damn, damn, damn," she muttered. On the one hand, this was a dangerous place to stay in. On the other, she'd been awake almost twenty hours now and she was dead on her feet. Exhausted. So very, very tired.

"O sleep! It is a gentle thing. Beloved from pole to pole. Coleridge."

Which, God knows, was tempting. But the numbers were clear: no sleep. With several deft chin-taps, Martha overrode her suit's safeties and accessed its medical kit. At her command, it sent a hit of methamphetamine rushing down the drug/vitamin catheter.

There was a sudden explosion of clarity in her skull and her heart began pounding like a jackhammer. Yeah. That did it. She was full of energy now. Deep breath. Long stride. Let's go.

No rest for the wicked. She had things to do. She left the flowers rapidly behind. Good-bye, Oz.

Fade out. Fade in. Hours had glided by. She was walking through a shadowy sculpture garden. Volcanic pillars (these were their second great discovery; they had no exact parallel on Earth) were scattered across the pyroclastic plain like so many isolated Lipschitz statues. They were all rounded and heaped, very much in the style of rapidly cooled magma. Martha remembered that Burton was dead, and cried quietly to herself for a few minutes.

Weeping, she passed through the eerie stone forms. The speed made

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them shift and move in her vision. As if they were dancing. They looked like women to her, tragic figures out of *The Bacchae* or, no, wait, *The Trojan Women* was the play she was thinking of. Desolate. Filled with anguish. Lonely as Lot's wife.

There was a light scattering of sulfur dioxide snow on the ground here. It sublimed at the touch of her boots, turning to white mist and scattering wildly, the steam disappearing with each stride and then being renewed with the next footfall. Which only made the experience all that much creepier.

Click.

"Io has a metallic core predominantly of iron and iron sulfide, overlain by a mantle of partially molten rock and crust."

"Are you still here?"

"Am trying. To communicate."

"Shut up."

She topped the ridge. The plains ahead were smooth and undulating. They reminded her of the Moon, in the transitional region between Mare Serenitatis and the foothills of the Caucasus Mountains, where she had undergone her surface training. Only without the impact craters. No impact craters on Io. Least cratered solid body in the solar system. All that volcanic activity deposited a new surface one meter thick every millennium or so. The whole damned moon was being constantly repaved.

Her mind was rambling. She checked her gauges, and muttered, "Let's get this show on the road."

There was no reply.

Dawn would come—when? Let's work this out. Io's "year," the time it took to revolve about Jupiter, was roughly forty-two hours fifteen minutes. She'd been walking seven hours. During which Io would've moved roughly sixty degrees through its orbit. So it would be dawn soon. That would make Daedalus's plume less obvious, but with her helmet graphics that wouldn't be a worry. Martha swiveled her neck, making sure that Daedalus and Jupiter were where they ought to be, and kept on walking.

Trudge, trudge, trudge. Try not to throw the map up on the visor every five minutes. Hold off as long as you can, just one more hour, okay, that's good, and another two miles. Not too shabby.

The sun was getting high. It would be noon in another hour and a half. Which meant—well, it really didn't mean much of anything.

Rock up ahead. Probably a silicate. It was a solitary six meters high brought here by who knew what forces and waiting who knew how many thousands of years just for her to come along and need a place to rest. She found a flat spot where she could lean against it, and, breathing heavily, sat down to rest. And think. And check the airpack. Four hours until she had to change it again. Bringing her down to two airpacks. She

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had slightly under twenty-four hours now. Thirty-five miles to go. That was less than two miles an hour. A snap. Might run a little tight on oxygen there toward the end, though. She'd have to take care she didn't fall asleep.

Oh, how her body ached.

It ached almost as much as it had in the '48 Olympics, when she'd taken the bronze in the women's marathon. Or that time in the internationals in Kenya when she'd come up from behind to tie for second. Story of her life. Always in third place, fighting for second. Always flight crew and sometimes, maybe, landing crew, but never the commander. Never class president. Never king of the hill. Just once—once!—she wanted to be Neil Armstrong.

Click.

"The marble index of a mind forever. Voyaging through strange seas of thought, alone. Wordsworth."

"What?"

"Jupiter's magnetosphere is the largest thing in the solar system. If the human eye could see it, it would appear two and a half times wider in the sky than the sun does."

"I knew that," she said, irrationally annoyed.

"Quotation is. Easy. Speech is. Not."

"Don't speak, then."

"Trying. To communicate!"

She shrugged. "So go ahead—communicate."

Silence. Then, "What does. This. Sound like?"

"What does what sound like?"

"Io is a sulfur-rich, iron-cored moon in a circular orbit around Jupiter. What does this. Sound like? Tidal forces from Jupiter and Ganymede pull and squeeze Io sufficiently to melt Tartarus, its sub-surface sulfur ocean. Tartarus vents its excess energy with sulfur and sulfur dioxide volcanoes. What does. This sound like? Io's metallic core generates a magnetic field that punches a hole in Jupiter's magnetosphere, and also creates a high-energy ion flux tube connecting its own poles with the north and south poles of Jupiter. What. Does this sound like? Io sweeps up and absorbs all the electrons in the million-volt range. Its volcanoes pump out sulfur dioxide; its magnetic field breaks down a percentage of that into sulfur and oxygen ions; and these ions are pumped into the hole punched in the magnetosphere, creating a rotating field commonly called the Io torus. What does this sound like? Torus. Flux tube. Magnetosphere. Volcanoes. Sulfur ions. Molten ocean. Tidal heating. Circular orbit. What does this sound like?"

Against her will, Martha had found herself first listening, then intrigued, and finally involved. It was like a riddle or a word-puzzle. There was a right answer to the question. Burton or Hols would have gotten it immediately. Martha had to think it through.

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There was the faint hum of the radio's carrier beam. A patient, waiting noise.

At last, she cautiously said, "It sounds like a machine."

"Yes. Yes. Yes. Machine. Yes. Am machine. Am machine. Am machine. Yes. Yes. Machine. Yes."

"Wait. You're saying that Io is a machine? That you're a machine? That you're *Io*?"

"Sulfur is triboelectric. Sledge picks up charges. Burton's brain is intact. Language is data. Radio is medium. Am machine."

"I don't believe you."

Trudge, drag, trudge, drag. The world doesn't stop for strangeness. Just because she'd gone loopy enough to think that Io was alive and a machine and talking to her, didn't mean that Martha could stop walking. She had promises to keep, and miles to go before she slept. And speaking of sleep, it was time for another fast refresher—just a quarter-hit—of speed.

Wow. Let's go!

As she walked, she continued to carry on a dialogue with her hallucination or delusion or whatever it was. It was too boring otherwise.

Boring, and a tiny bit terrifying.

So she asked, "If you're a machine, then what is your function? Why were you made?"

"To know you. To love you. And to serve you."

Martha blinked. Then, remembering Burton's long reminiscences on her Catholic girlhood, she laughed. That was a paraphrase of the answer to the first question in the old Baltimore Catechism: *Why did God make man?* "If I keep on listening to you, I'm going to come down with delusions of grandeur."

"You are. Creator. Of machine."

"Not me."

She walked on without saying anything for a time. Then, because the silence was beginning to get to her again, "When was it I supposedly created you?"

"So many a million of ages have gone. To the making of man. Alfred, Lord Tennyson."

"That wasn't me, then. I'm only twenty-seven. You're obviously thinking of somebody else."

"It was. Mobile. Intelligent. Organic. Life. You are. Mobile. Intelligent. Organic. Life."

Something moved in the distance. Martha looked up, astounded. A horse. Pallid and ghostly white, it galloped soundlessly across the plains, tail and mane flying.

She squeezed her eyes tight and shook her head. When she opened her

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eyes again, the horse was gone. A hallucination. Like the voice of Burton/Io. She'd been thinking of ordering up another refresher of the meth, but now it seemed best to put it off as long as possible.

This was sad, though. Inflating Burton's memories until they were as large as Io. Freud would have a few things to say about *that*. He'd say she was magnifying her friend to a godlike status in order to justify the fact that she'd never been able to compete one-on-one with Burton and win. He'd say she couldn't deal with the fact that some people were simply better at things than she was.

Trudge, drag, trudge, drag.

So, okay, yes, she had an ego problem. She was an overambitious, self-centered bitch. So what? It had gotten her this far, where a more reasonable attitude would have left her back in the slums of greater Levittown. Making do with an eight-by-ten room with bathroom rights and a job as a dental assistant. Kelp and talapia every night, and rabbit on Sunday. The hell with that. She was alive and Burton wasn't—by any rational standard that made her the winner.

"Are you. Listening?"

"Not really, no."

She topped yet another rise. And stopped dead. Down below was a dark expanse of molten sulfur. It stretched, wide and black, across the streaked orange plains. A lake. Her helmet readouts ran a thermal topography from the negative 230°F at her feet to 65°F at the edge of the lava flow. Nice and balmy. The molten sulfur itself, of course, existed at higher ambient temperatures.

It lay dead in her way.

They'd named it Lake Styx.

Martha spent half an hour muttering over her topo maps, trying to figure out how she'd gone so far astray. Not that it wasn't obvious. All that stumbling around. Little errors that she'd made, adding up. A tendency to favor one leg over the other. It had been an iffy thing from the beginning, trying to navigate by dead reckoning.

Finally, though, it was obvious. Here she was. On the shores of Lake Styx. Not all that far off course after all. Three miles, maybe, tops.

Despair filled her.

They'd named the lake during their first loop through the Galilean system, what the engineers had called the "mapping run." It was one of the largest features they'd seen that wasn't already on the maps from satellite probes or Earth-based reconnaissance. Hols had thought it might be a new phenomenon—a lake that had achieved its current size within the past ten years or so. Burton had thought it would be fun to check it out. And Martha hadn't cared, so long as she wasn't left behind. So they'd added the lake to their itinerary.

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She had been so transparently eager to be in on the first landing, so afraid that she'd be left behind, that when she suggested they match fingers, odd man out, for who stayed, both Burton and Hols had laughed. "I'll play mother," Hols had said magnanimously, "for the first landing. Burton for Ganymede and then you for Europa. Fair enough?" And ruffled her hair.

She'd been so relieved, and so grateful, and so humiliated too. It was ironic. Now it looked like Hols—who would *never* have gotten so far off course as to go down the wrong side of the Styx—wasn't going to get to touch rock at all. Not this expedition.

"Stupid, stupid, stupid," Martha muttered, though she didn't know if she were condemning Hols or Burton or herself. Lake Styx was horseshoe-shaped and twelve miles long. And she was standing right at the inner toe of the horseshoe.

There was no way she could retrace her steps back around the lake and still get to the lander before her air ran out. The lake was dense enough that she could almost *swim* across it, if it weren't for the viscosity of the sulfur, which would coat her heat radiators and burn out her suit in no time flat. And the heat of the liquid. And whatever internal flows and undertows it might have. As it was, the experience would be like drowning in molasses. Slow and sticky.

She sat down and began to cry.

After a time she began to build up her nerve to grope for the snap-coupling to her airpack. There was a safety for it, but among those familiar with the rig it was an open secret that if you held the safety down with your thumb and yanked suddenly on the coupling, the whole thing would come undone, emptying the suit in less than a second. The gesture was so distinctive that hot young astronauts-in-training would mime it when one of their number said something particularly stupid. It was called the suicide flick.

There were worse ways of dying.

"Will build. Bridge. Have enough. Fine control of. Physical processes. To build. Bridge."

"Yeah, right, very nice, you do that," Martha said absently. If you can't be polite to your own hallucinations . . . She didn't bother finishing the thought. Little crawly things were creeping about on the surface of her skin. Best to ignore them.

"Wait. Here. Rest. Now."

She said nothing but only sat, not resting. Building up her courage. Thinking about everything and nothing. Clutching her knees and rocking back and forth.

Eventually, without meaning to, she fell asleep.

"Wake. Up. Wake. Up. Wake. Up."

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"Uhh?"

Martha struggled up into awareness. Something was happening before her, out on the lake. Physical processes were at work. Things were moving.

As she watched, the white crust at the edge of the dark lake bulged outward, shooting out crystals, extending. Lacy as a snowflake. Pale as frost. Reaching across the molten blackness. Until there was a narrow white bridge stretching all the way to the far shore.

"You must. Wait," Io said. "Ten minutes and. You can. Walk across. It. With ease."

"Son of a bitch!" Martha murmured. "I'm sane."

In wondering silence, she crossed the bridge that Io had enchanted across the dark lake. Once or twice the surface felt a little mushy underfoot, but it always held.

It was an exalting experience. Like passing over from Death into Life.

At the far side of the Styx, the pyroclastic plains rose gently toward a distant horizon. She stared up yet another long, crystal-flower-covered slope. Two in one day. What were the odds against that?

She struggled upward, flowers exploding as they were touched by her boots. At the top of the rise, the flowers gave way to sulfur hardpan again. Looking back, she could see the path she had crunched through the flowers begin to erase itself. For a long moment she stood still, venting heat. Crystals shattered soundlessly about her in a slowly expanding circle.

She was itching something awful now. Time to freshen up. Six quick taps brought up a message on her visor: *Warning: Continued use of this drug at current levels can result in paranoia, psychosis, hallucinations, misperceptions, and hypomania, as well as impaired judgment.*

Fuck that noise. Martha dealt herself another hit.

It took a few seconds. Then—whoops. She was feeling light and full of energy again. Best check the airpack reading. Man, that didn't look good. She had to giggle.

Which was downright scary.

Nothing could have sobered her up faster than that high little druggie laugh. It terrified her. Her life depended on her ability to maintain. She had to keep taking meth to keep going, but she also had to keep going under the drug. She couldn't let it start calling the shots. Focus. Time to switch over to the last airpack. Burton's airpack. "I've got eight hours of oxygen left. I've got twelve miles yet to go. It can be done," she said grimly. "I'm going to do it now."

If only her skin weren't itching. If only her head weren't crawling. If only her brain weren't busily expanding in all directions.

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Trudge, drag, trudge, drag. All through the night. The trouble with repetitive labor was that it gave you time to think. Time to think when you were speeding also meant time to think about the quality of your own thought.

You didn't dream in real-time, she'd been told. You get it all in one flash, just as you're about to wake up, and in that instant extrapolate a complex dream all in one whole. It feels as if you've been dreaming for hours. But you've only had one split second of intense nonreality.

Maybe that's what's happening here.

She had a job to do. She had to keep a clear head. It was important that she get back to the lander. People had to *know*. They weren't alone anymore. Damnit, she'd just made the biggest discovery since fire!

Either that, or she was so crazy she was hallucinating that Io was a gigantic alien machine. So crazy she'd lost herself within the convolutions of her own brain.

Which was another terrifying thing she wished she hadn't thought of. She'd been a loner as a child. Never made friends easily. Never had or been a best friend to anybody. Had spent half her girlhood buried in books. Solipsism terrified her—she'd lived right on the edge of it for too long. So it was vitally important that she determine whether the voice of Io had an objective, external reality. Or not.

Well, how could she test it?

Sulfur was triboelectric, Io had said. Implying that it was in some way an electrical phenomenon. If so, then it ought to be physically demonstrable.

Martha directed her helmet to show her the electrical charges within the sulfur plains. Crank it up to the max.

The land before her flickered once, then lit up in fairyland colors. Light! Pale oceans of light overlaying light, shifting between pastels, from faded rose to boreal blue, multilayered, labyrinthine, and all pulsing gently within the heart of the sulfur rock. It looked like thought made visual. It looked like something straight out of DisneyVirtual, and not one of the nature channels either—definitely DV-3.

"Damn," she muttered. Right under her nose. She'd had no idea.

Glowing lines veined the warping wings of subterranean electromagnetic forces. Almost like circuit wires. They crisscrossed the plains in all directions, combining and then converging—not upon her, but in a nexus at the sled. Burton's corpse was lit up like neon. Her head, packed in sulfur dioxide snow, strobed and stuttered with light so rapidly that it shone like the sun.

Sulfur was triboelectric. Which meant that it built up a charge when rubbed.

She'd been dragging Burton's sledge over the sulfur surface of Io for how many hours? You could build up a hell of a charge that way.

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So, okay. There was a physical mechanism for what she was seeing. Assuming that Io really *was* a machine, a triboelectric alien device the size of Earth's moon, built eons ago for who knows what purpose by who knows what godlike monstrosities, then, yes, it might be able to communicate with her. A lot could be done with electricity.

Lesser, smaller, and dimmer "circuitry" reached for Martha as well. She looked down at her feet. When she lifted one from the surface, the contact was broken, and the lines of force collapsed. Other lines were born when she put her foot down again. Whatever slight contact might be made was being constantly broken. Whereas Burton's sledge was in constant contact with the sulfur surface of Io. That hole in Burton's skull would be a highway straight into her brain. And she'd packed it in solid SO_2 as well. Conductive *and* supercooled. She'd made things easy for Io.

She shifted back to augmented real-color. The DV-3 SFX faded away.

Accepting as a tentative hypothesis that the voice was a real rather than a psychological phenomenon. That Io was able to communicate with her. That it was a machine. That it had been built . . .

Who, then, had built it?

Click.

"Io? Are you listening?"

"Calm on the listening ear of night. Come Heaven's melodious strains. Edmund Hamilton Sears."

"Yeah, wonderful, great. Listen, there's something I'd kinda like to know—who built you?"

"You. Did."

Slyly, Martha said, "So I'm your creator, right?"

"Yes."

"What do I look like when I'm at home?"

"Whatever. You wish. To."

"Do I breathe oxygen? Methane? Do I have antennae? Tentacles? Wings? How many legs do I have? How many eyes? How many heads?"

"If. You wish. As many as. You wish."

"How many of me are there?"

"One." A pause. "Now."

"I was here before, right? People like me. Mobile intelligent life forms. And I left. How long have I been gone?"

Silence. "How long—" she began again.

"Long time. Lonely. So very. Long time."

Trudge, drag. Trudge, drag. Trudge, drag. How many centuries had she been walking? Felt like a lot. It was night again. Her arms felt like they were going to fall out of their sockets.

Really, she ought to leave Burton behind. She'd never said anything to make Martha think she cared one way or the other where her body

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wound up. Probably would've thought a burial on Io was pretty damn nifty. But Martha wasn't doing this for her. She was doing it for herself. To prove that she wasn't entirely selfish. That she did too have feelings for others. That she was motivated by more than just the desire for fame and glory.

Which, of course, was a sign of selfishness in itself. The desire to be known as selfless. It was hopeless. You could nail yourself to a fucking cross, and it would still be proof of your innate selfishness.

"You still there, Io?"

Click.

"Am. Listening."

"Tell me about this fine control of yours. How much do you have? Can you bring me to the lander faster than I'm going now? Can you bring the lander to me? Can you return me to the orbiter? Can you provide me with more oxygen?"

"Dead egg, I lie. Whole. On a whole world I cannot touch. Plath."

"You're not much use, then, are you?"

There was no answer. Not that she had expected one. Or needed it, either. She checked the topos and found herself another eighth-mile closer to the lander. She could even see it now under her helmet photomultipliers, a dim glint upon the horizon. Wonderful things, photomultipliers. The sun here provided about as much light as a full moon did back on Earth. Jupiter by itself provided even less. Yet crank up the magnification, and she could see the airlock awaiting the grateful touch of her gloved hand.

Trudge, drag, trudge. Martha ran and reran and rereran the math in her head. She had only three miles to go, and enough oxygen for as many hours. The lander had its own air supply. She was going to make it.

Maybe she wasn't the total loser she'd always thought she was. Maybe there was hope for her, after all.

Click.

"Brace. Yourself."

"What for?"

The ground rose up beneath her and knocked her off her feet.

When the shaking stopped, Martha clambered unsteadily to her feet again. The land before her was all a jumble, as if a careless deity had lifted the entire plain up a foot and then dropped it. The silvery glint of the lander on the horizon was gone. When she pushed her helmet's magnification to the max, she could see a metal leg rising crookedly from the rubbled ground.

Martha knew the shear strength of every bolt and failure point of every welding seam in the lander. She knew exactly how fragile it was. That was one device that was never going to fly again.

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She stood motionless. Unblinking. Unseeing. Feeling nothing. Nothing at all.

Eventually she pulled herself together enough to think. Maybe it was time to admit it: She never *had* believed she was going to make it. Not really. Not Martha Kivelsen. All her life she'd been a loser. Sometimes—like when she qualified for the expedition—she lost at a higher level than usual. But she never got whatever it was she really wanted.

Why was that, she wondered? When had she ever desired anything bad? When you get right down to it, all she'd ever wanted was to kick God in the butt and get his attention. To be a big noise. To be the biggest fucking noise in the universe. Was that so unreasonable?

Now she was going to wind up as a footnote in the annals of humanity's expansion into space. A sad little cautionary tale for mommy astronauts to tell their baby astronauts on cold winter nights. Maybe Burton could've gotten back to the lander. Or Hols. But not *her*. It just wasn't in the cards.

Click.

"Io is the most volcanically active body in the solar system."

"You fucking bastard! Why didn't you warn me?"

"Did. Not. Know."

Now her emotions returned to her in full force. She wanted to run and scream and break things. Only there wasn't anything in sight that hadn't already been broken. "You shithead!" she cried. "You idiot machine! What use are you? What goddamn use at all?"

"Can give you. Eternal life. Communion of the soul. Unlimited processing power. Can give Burton. Same."

"Hah?"

"After the first death. There is no other. Dylan Thomas."

"What do you mean by that?"

Silence.

"Damn you, you fucking machine! What are you trying to *say*?"

Then the devil took Jesus up into the holy city and set him on the highest point of the temple, and said to him, "If thou be the Son of God, cast thyself down: for it is written he shall give his angels charge concerning thee: and in their hands they shall bear thee up."

Burton wasn't the only one who could quote scripture. You didn't have to be Catholic, like her. Presbyterians could do it too.

Martha wasn't sure what you'd call this feature. A volcanic phenomenon of some sort. It wasn't very big. Maybe twenty meters across, not much higher. Call it a crater, and let be. She stood shivering at its lip. There was a black pool of molten sulfur at its bottom, just as she'd been told. Supposedly its roots reached all the way down to Tartarus.

Her head ached so badly.

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Io claimed—had *said*—that if she threw herself in, it would be able to absorb her, duplicate her neural patterning, and so restore her to life. A transformed sort of life, but life nonetheless. "Throw Burton in," it had said. "Throw yourself in. Physical configuration will be. Destroyed. Neural configuration will be. Preserved. Maybe."

"Maybe?"

"Burton had limited. Biological training. Understanding of neural functions may be. Imperfect."

"Wonderful."

"Or. Maybe not."

"Gotcha."

Heat radiated up from the bottom of the crater. Even protected and shielded as she was by her suit's HVAC systems, she felt the difference between front and back. It was like standing in front of a fire on a very cold night.

They had talked, or maybe negotiated was a better word for it, for a long time. Finally Martha had said, "You savvy Morse code? You savvy orthodox spelling?"

"Whatever Burton. Understood. Is. Understood."

"Yes or no, damnit!"

"Savvy."

"Good. Then maybe we can make a deal."

She stared up into the night. The orbiter was out there somewhere, and she was sorry she couldn't talk directly to Hols, say good-bye and thanks for everything. But Io had said no. What she planned would raise volcanoes and level mountains. The devastation would dwarf that of the earthquake caused by the bridge across Lake Styx.

It couldn't guarantee two separate communications.

The ion flux tube arched from somewhere over the horizon in a great looping jump to the north pole of Jupiter. Augmented by her visor, it was as bright as the sword of God.

As she watched, it began to sputter and jump, millions of watts of power dancing staccato in a message they'd be picking up on the surface of Earth. It would swamp every radio and drown out every broadcast in the Solar System.

THIS IS MARTHA KIVELSEN, SPEAKING FROM THE SURFACE OF IO ON BEHALF OF MYSELF, JULIET BURTON, DECEASED, AND JACOB HOLS, OF THE FIRST GALILEAN SATELLITES EXPLORATORY MISSION. WE HAVE MADE AN IMPORTANT DISCOVERY . . .

Every electrical device in the System would *dance* to its song!

Burton went first. Martha gave the sledge a shove, and out it flew, into

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empty space. It dwindled, hit, kicked up a bit of a splash. Then, with a disappointing lack of pyrotechnics, the corpse slowly sank into the black glop.

It didn't look very encouraging at all.

Still . . .

"Okay," she said. "A deal's a deal." She dug in her toes and spread her arms. Took a deep breath. Maybe I am going to survive after all, she thought. It could be Burton was already halfway-merged into the oceanic mind of Io, and awaiting her to join in an alchemical marriage of personalities. Maybe I'm going to live forever. Who knows? Anything is possible.

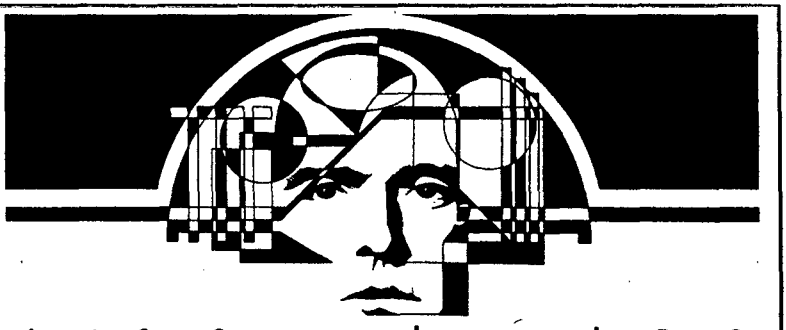
Maybe.

There was a second and more likely possibility. All this could well be nothing more than a hallucination. Nothing but the sound of her brain short-circuiting and squirting bad chemicals in all directions. Madness. One last grandiose dream before dying. Martha had no way of judging.

Whatever the truth might be, though, there were no alternatives, and only one way to find out.

She jumped.

Briefly, she flew. ●



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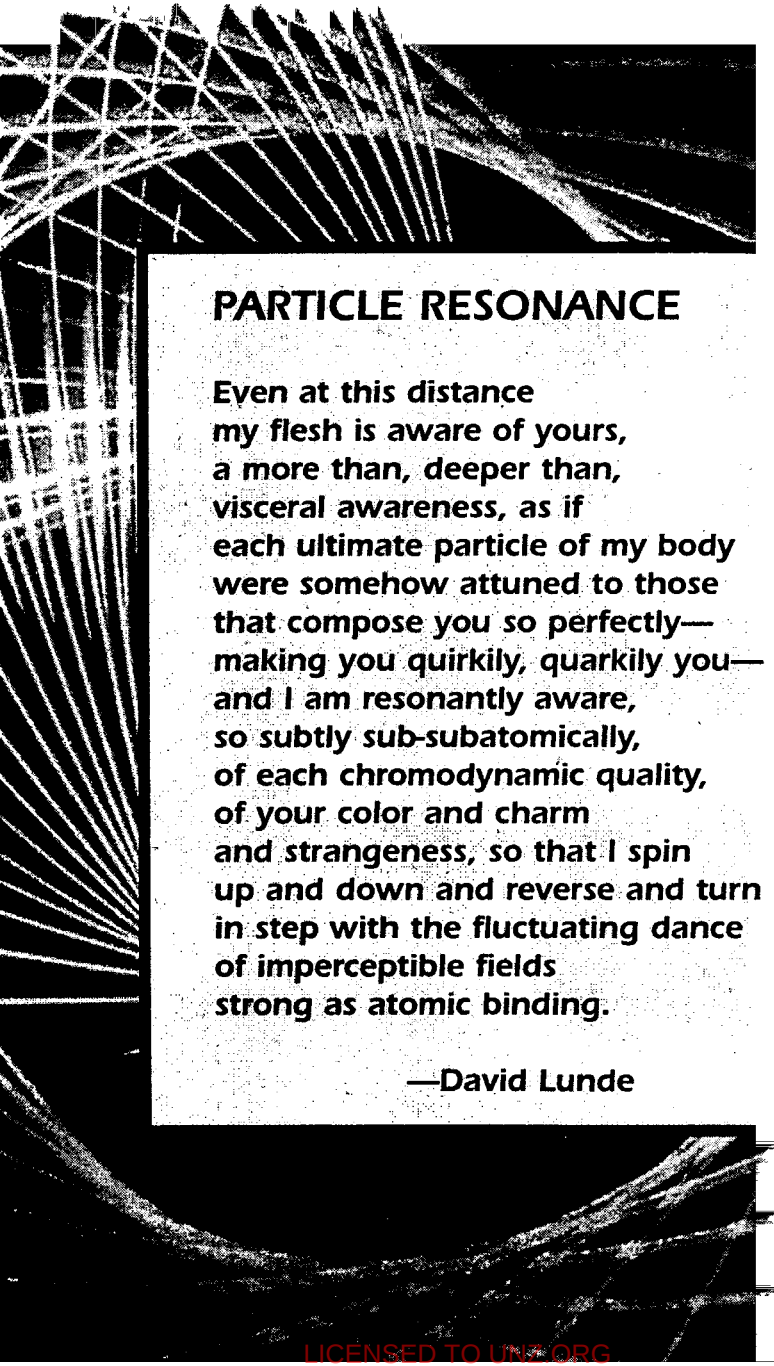

PARTICLE RESONANCE

Even at this distance
my flesh is aware of yours,
a more than, deeper than,
visceral awareness, as if
each ultimate particle of my body
were somehow attuned to those
that compose you so perfectly—
making you quirkily, quarkily you—
and I am resonantly aware,
so subtly sub-subatomically,
of each chromodynamic quality,
of your color and charm
and strangeness, so that I spin
up and down and reverse and turn
in step with the fluctuating dance
of imperceptible fields
strong as atomic binding.

—David Lunde

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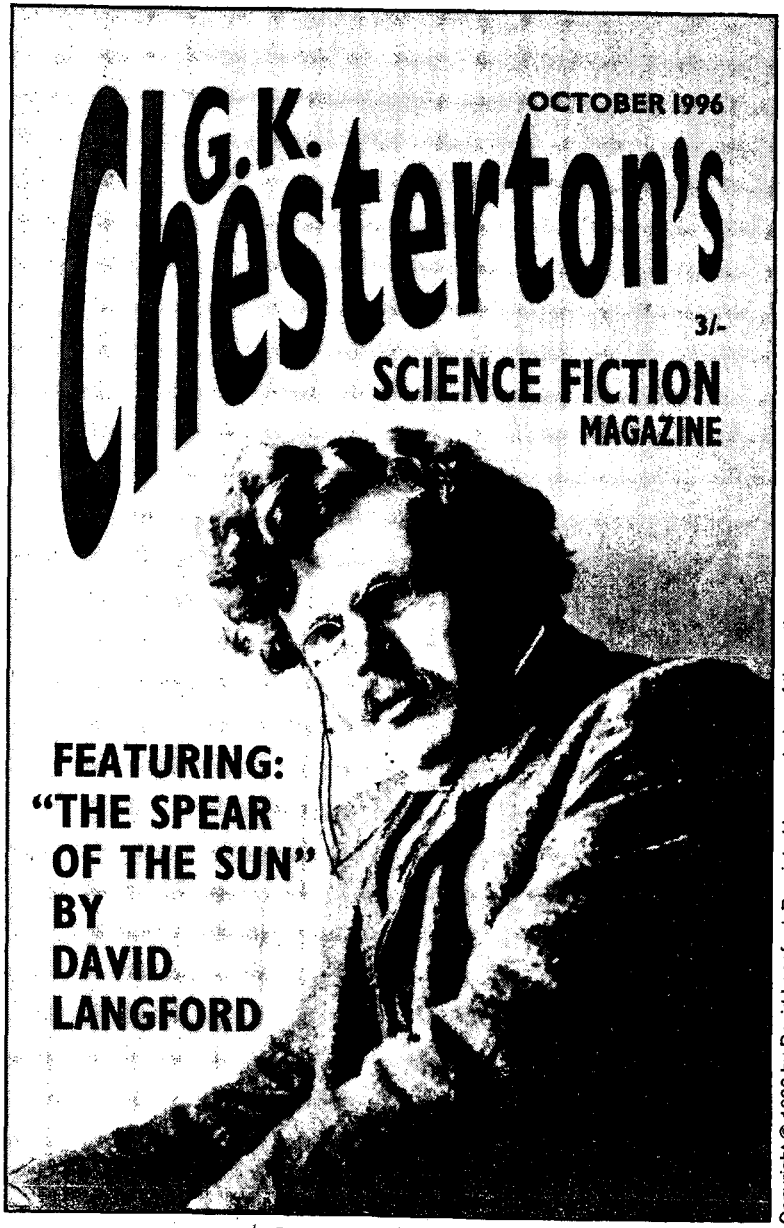

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Since its inception in 1925, the most famous shared-world series in *G.K. Chesterton's Science Fiction Magazine* has always been the adventures of that much-loved interplanetary sleuth Father (later in the chronology, Monsignor) Brown. There is no need to list the long roll call of those who have taken part—Hilaire Belloc, Graham Greene, Jorge Luis Borges, Kurt Scheer, Clark Darlton, R.A. Lafferty, Gene Wolfe, and Robert Lionel Fanthorpe being just a few of the illustrious contributors[1], not to mention the bright talents emerging from the splendid *GKC Presents Catholic Writers of the Future* anthologies. And we are always glad to welcome fresh participants. Here, therefore, is the first of *GKSFM's* eagerly awaited new series "The Fractals of Father Brown," penned by SF Achievement ("Gilbert") Award-winner David Langford. . . .

The luxury liner *H.M.S. Aquinas* sped among the stars, its great engines devouring distance and defying time. Each porthole offered a lurid glimpse of that colossal pointillist work which God Himself has painted in subtle yet searing star-points upon the black canvas of creation, too vast for any critic ever to step back and see entire. In the main lounge, however, the ship's passengers were already jaded by the splendor of the suns and had found a new distraction. For Astron, high celebrant of the newest religion, was weaving dazzling circles of rhetoric around a shabby, blinking priest of the oldest.

"Did not a great writer once say that the interstellar spaces are God's quarantine regulations? I think the blight He had in mind was the blight of men like this, crabbed and joyless celibates who spread their poisoned doctrines of guilt and fear from planet to planet, world after world growing grey with their breath. . . ."

The crabbed and joyless object of these attentions sipped wine and contrived to look remarkably cheerful. Father Brown was traveling from his parish of Cobhole in England on Old Earth as an emissary to the colony world Pavonia III, where Astron planned to harvest countless converts and (it is to be assumed) decidedly countable cash donations for his Universal Temple of Fire.

"For the Church of Fire pays heed to its handmaid Science, and sheds the moldy baggage of superstition. The living Church of Fire gives respect to the atomic blaze at the heart of every sun, to the divine laws of supersymmetry and chaos theory; the dying church of superstition had nothing to say about either at Vatican III."

The little, pudding-faced priest murmured: "We never needed chaos

[1] We remind our readers that Mr. Philip José Farmer's delightful but unauthorized contributions (*Father Brown Vs. the Insidious Dr. Fu-Manchu, Father Brown 124C41+, Father Brown in Oz*, etc.) are not regarded as strictly canonical.

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theory to know that the cycles of evil run ever smaller and smaller down the scales of measurement, yet always dreadfully self-similar." But it passed unheeded.

Astron boomed on, remarking that those who obstructed the universal Light would be struck down by the spear of the sun. Indeed, he looked every inch the pagan god, with his great height, craggy features, and flowing flaxen hair now streaked with silver. A golden sunburst of a ring gleamed on his finger. His acolyte Simon Traill was yet more handsome though less vocal, perhaps a little embarrassed at Astron's taunting. Both wore plain robes of purest white. The group that pressed around consisted chiefly of women; Father Brown noted with interest that red-haired Elizabeth Brayne, whom he knew to be the billionaire heiress of Brayne Interplanetary, pressed closest of all and close in particular to young Traill. She wore the dangerous look of a woman who thinks she knows her own mind.

"Damn them," said a voice at Brown's ear. "Pardon me, Father. But you heard that Astron saying what he thinks of celibacy. He chews women up and spits out the pieces. See Signora Maroni back there with a face like thunder? She's a bit long in the tooth for Mr. Precious Astron, but for the first two nights of this trip she had something he wanted. Now that something's in his blasted Temple fund, and— Well, perhaps you wouldn't understand."

"Oh, stories like this do occasionally crop up in the confessional," said the dumpling-faced priest vaguely, eyeing the dark young man. John Horne was a mining engineer, who until now had talked of nothing but Pavonia III's bauxite and the cargo of advanced survey and digging equipment that was traveling out with him. Father Brown knew the generous wrath of simple men, and tried to spread a little calm by inquiring about the space-walk in which several of the passengers had indulged earlier.

Though allowing himself to be diverted for a little time, Horne presently said, "Don't you feel a shade hot under the dog-collar when Astron needles you about his Religion of Science and how outdated you are?"

"Oh yes, science progresses most remarkably," said Father Brown with bumbling enthusiasm. "In Sir Isaac Newton's mechanics, you know, it was the three-body problem that didn't have any general solution. Then came Relativity and it was the two-body problem that was troublesome. After that, Quantum Theory found all these complications in the *one*-body problem, a single particle; and now they tell me that relativistic quantum field theory is stuck at the no-body problem, the vacuum itself. I can hardly wait to hear what tremendous step comes next."

Horne looked at him a little uncertainly.

A silvery chime sounded. "Attention, attention. This is the captain speaking. Dinner will be served at six bells. Shortly beforehand there will

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be a course correction with a temporary boost of acceleration from five-eighths to fifteen-sixteenths *g*."

"I go," said Astron with a kind of stately anger, drawing himself up to his full, impressive height and pulling the deep white cowl of the robe over his head. "I go to be alone and meditate over the Sacred Flame." With Traill cowled likewise in his wake, he stalked gigantically from the lounge.

"That makes me madder than anything," Horne said gloomily, beginning to amble in the general direction of Elizabeth Brayne. "No pipes, no cigarettes, that's an iron rule—and *he* manages to wangle an eternal flame in his ruddy stateroom. The safety officer would like to kill him."

But it was not the safety officer who came under suspicion when the news raced through the *Aquinas* like leaves in a mad March wind: that a third lieutenant making final checks before the course change had used a master key and found that great robed figure slumped over the brazier of the Universal Flame, face charred and flowing hair gone to smoke, a scientific seeker who had solved the no-body problem at last.

By a happy chance, ship security had been contracted out to the agency of M. Hercule Flambeau, one-time master criminal[2] and an old friend of Father Brown, who set to in a frenzy of Gallic fervor. Knowing the pudgy little priest's power of insight, Flambeau invited him at once to the chamber of death. It was a stark and austere stateroom, distinguished by the wide brazier (its gas flame now extinguished) and the terrible figure that the third lieutenant had dragged from the fire.

"He seems to have bent over his wretched flame and prayed, or whatever mumbo-jumbo the cult of Fire uses for prayer," mused Father Brown. "Better for him to have looked up and not down, and savored the stars through that porthole. . . . Even the stars look twisted in this accursed place. Might he have died naturally and fallen? That would be ugly enough, but not devilish."

The tall Flambeau drew out a slip of computer paper. "My friend, we know to distrust coincidence. The acolyte Traill is nowhere to be found, and the ship's records say the nearest airlock has cycled just once, outward, since Astron left the main lounge an hour ago. Some avenger has made a clean sweep of the Church of Fire's mission: one dead in a locked room, one jettisoned. And half the women and all the men out there might have had a potent motive. We're carrying members of rival cults too—the Club of Queer Trades, the Dead Men's Shoes Society, the Ten Teacups, and heaven knows what else. But how in God's name could any of them get in here?"

"Don't forget the crabbed priesthood that blights human souls," said

[2] Flambeau repented, made his full confession to Father Brown and joined the side of the angels on some forty-two occasions, all listed in Martin Gardner's *Flambeau, Boskone, and Ming the Merciless: the Annotated Father Brown Villains* (1987).

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the smaller man earnestly. "Astron was last seen attacking it with a will, and its representative has an obviously criminal face. *Ecce homo.*" He tapped himself on the chest.

"Father Brown, I cannot believe you did this thing."

"Well, in confidence, I'll admit to you that I didn't." He bustled curiously about the room, blinking at the oversized bed and peering again through the viewport as though the stars themselves held some elusive clue. Last of all he studied the robed corpse's ruined face and pale hands, and shuddered.

"The spear of the sun," he muttered to himself. "Astron threatened his enemies with the spear of the sun. And where does a wise man hide a spear?"

"In an armory, I suppose," said Flambeau in a low voice.

"In poor foolish William Blake's armory. You remember, *All the stars threw down their spears?* But the angel Ithuriel also carries a spear. Excuse me, I know I'm rambling, but I can see half of it, just half. . . ." Father Brown stood stock still with hands pressed into his screwed-up eyes. At last he said: "You thought I shuddered at that wreck of a face. I shuddered at the hands."

"But there is nothing to see—no mark on the hands."

"There is nothing. And there should be a great sunburst ring. They are younger hands than Astron's, when you look. It is the acolyte Traill who lies there."

Flambeau gaped. "But that can't be. It turns everything topsy-turvy; it makes the whole case the wrong shape."

"So was that equation," said Father Brown gently. "And we survived even that equation.[3] But I need one further fact." He scribbled on a slip of paper and folded it. "Have one of your men show this to John Horne. A reply is expected."

Wordlessly, Flambeau pressed a stud and did what was asked. "Horne," he said when the two friends were alone again. "The one who fancies Miss Brayne and didn't like her interest in men with white robes. Is he your choice for the dock?"

"No. For the witness-box." Father Brown sat on the edge of the bed, the dinginess of his cassock highlighted by the expanse of white satin quilting, his stubby legs not quite reaching the deck plates. "I think this story begins with young Horne prattling over dinner about his cargo. So I asked whether a piece of his equipment was missing. Come now: when you think of fiery death in a locked stateroom, what does mining and surveying gear suggest to you?"

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[3] Older readers will recognize the allusion to that insight which saved the Holy Galactic Empire from the threat of secular "psychohistorians" in Isaac Asimov's classic *Foundation and Father Brown* (1951).

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"Nothing but moonshine," said Flambeau with sarcasm. "I do assure you that each hull plate and bulkhead has been carefully inspected for any trace of a four-foot mineshaft through which a murderer might crawl."

"That's the whole sad story. Even when you look at it you can't see it: but every stateroom of this vessel contains a Judas window through which death can strike. And—" Brown's muddy eyes widened suddenly. "Of course! The spear of the sun is two-edged. My friend, I predict . . . I predict that you will never make an arrest."

As Flambeau arose with an oath, the communicator on his wrist crackled. "What? The answer is yes? Father, the answer is yes."

"Then let me tell you the story," said the priest. "The great Astron devoured woman after woman, but most of all he craved the women who did not crave him. For as I saw, Elizabeth Brayne was taken with Simon Traill. And Astron left the room in anger.

"I fancy it was his practice to have Traill watch over the ritual flame for him, while another cowled figure glided out upon certain assignations. But this time Astron's assignation was a darker one. He knew where to find the pressure suits: there was a space-walking party a few watches ago. He knew that in Horne's cargo he would find his spear."

"Which is—?"

"A laser."

Father Brown continued dreamily after a sort of thunderous silence. "Picture Astron floating a little way outside that porthole, a wide-open window for his frightful, insubstantial bolt. Picture his unknowing rival Traill bent over the flame, struck in the face, falling dead across the brazier which would slowly burn away every mark of how he died."

"Name of a name," cried Flambeau. "He is still out there. We shall have him yet!"

"You will never have him." Father Brown shook his head slowly. "The spear, I said, is two-edged. Oh, these strong and simple Stoics with their great bold ideas! Astron called us impractical and superstitious, but lacked even the little smattering of quantum electrodynamics that every seminarian picks up along with his Latin and his St. Augustine. He thought the crystal of the port purely transparent, Flambeau: but there is diffraction, my friend, and there is partial reflection. And even as it slew his victim, the spear of the sun rebounded to strike the murderer blind." The little priest shivered. "Yes, the humor of God can be cruel. Astron's easy arrogance saw the motes in all men's eyes, and now at last found the beam in his own. . . .

"Picture him now, flinging his suit this way and that with those clever little gas-jets, with nightmare pressing in as he realizes he *cannot find the ship* in the endless dark. And then comes the course correction and he has no more chance. And now that void which he worshipped in his heart has become his vast sarcophagus."

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"I think," said Flambeau slowly, "that brandy would be a good thing. Mother of God. All that from a missing ring."

"Not only that," said Father Brown. "The viewport crystal was slightly distorted by the heat of the beam's passage. I said the stars looked twisted, but you thought I was being sentimental." ●

IN OUR NEXT ISSUE: Fr. Brian Stableford SJ continues his series on forgotten SF authors, with a spirited case for reviving the works of nineteenth-century fantasist H.G. Wells. Our regular *Credo Quia Impossibile* squib daringly tackles another zero-probability notion in "The Piltdown Effect"—we know from *GKSFM* science columns by Hilaire Belloc, Jimmy Swaggart, and other fine popularizers that mankind is a fixed genetic type, *but just suppose for one terrifying moment that it were not so!* Of course the "Should Women Authors Be Allowed in *GKSFM*?" debate rages on in the letter column: what amusingly outrageous thing *will* that "Ms." Cadigan say next? Carl Sagan contributes a devastatingly frank essay on science's inability to explain weeping images or miraculous liquefactions. And our millions of avid readers in the Americas will welcome the coming feature on brash colonial editor Gardner Dozois and his shoestring launch of (at last!) an all-United States SF magazine, called *Interzone:* we shall have to look to our laurels. . . .

David Langford lives in Reading, England, with a collection of fourteen Hugo awards for best fanzine and best fanwriter. Mr. Langford publishes Britain's eccentric SF newsletter, *Ansible*. His latest professional publication is the humorous/critical collection, *The Silence of the Langford*, which was a 1997 Nonfiction Hugo nominee.

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Human/Technological Dimensions on the Eve of the Bimillennium

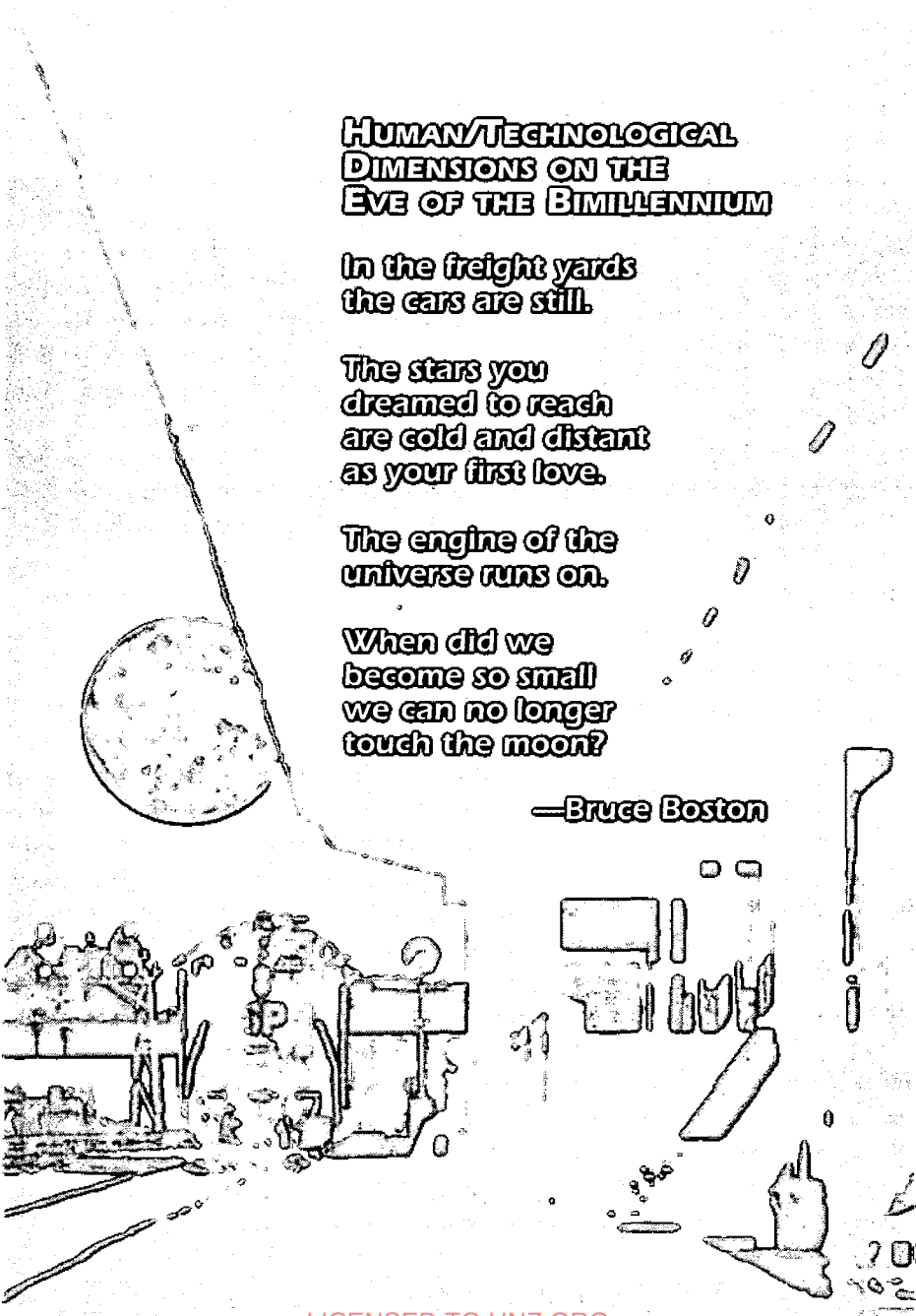
In the freight yards
the cars are still.

The stars you
dreamed to reach
are cold and distant
as your first love.

The engine of the
universe runs on.

When did we
become so small
we can no longer
touch the moon?

—Bruce Boston



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Esther M. Friesner

Two-time Nebula-award-winning author Esther M. Friesner returns to our pages with a disquieting story about the terrors that lurk . . .

IN THE REALM OF DRAGONS

Illustration by Darryl Elliott

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The bus from Philly to New York was hot as hell. The air conditioning had broken down thirty miles out of the city. Not the best turn of events on a late September day that felt more like high August. Ryan Lundberg sat back limp in his seat without so much as a silent curse to spare for the sweltering air or the stink of urine from the tiny onboard bathroom. He had strength to save, a calling to heed. His eyes closed, dragged down by a weight of scales.

The little clay dragon in his hand smoldered and pulsed with the heat. He held it to his heart and told it to lie cool and still. Time enough for fire when they found Uncle Graham's murderers. Plenty of time for fire then. He drowsed, lapped in thoughts of flame. He was not even a little startled when his head nodded forward and he felt the sting of spiny barbels as his chin touched his chest.

He had not brought the dragon with him on the bus—he knew that with the same certainty that he knew his own name—yet here it was. *Here.* Not where his hands had placed it, tucked away safe in his top drawer at school, keeping watch over photographs, condoms, dryer-orphaned socks he never got around to throwing away. He'd found it in his wasn't-it-empty pocket after the bus left the rest stop on the turnpike. He did not try to understand how it had come to be there; that was to invite madness.

"I just draw the castles," Uncle Graham used to say. "People who ask me when they can move into them and if the rent includes unicorns, *they're* the ones who've got problems." And he would laugh.

Problems . . . The echo of the long-since spoken word faded into the far-and-far behind Ryan's eyes. *Yeah, Uncle Graham, there's more than a few of us around with problems now.* He flexed his hand and felt claws gouge deep chasms into the cheap plastic armrests. *Insanity is not what you see, but what you admit to seeing.* The litany he'd composed to hold onto some sliver of control warmed his mind. *Craziness is the compulsion to explain. The dragon that's suddenly, solidly here when I know I never brought—Let it be here unchallenged. And what I feel closing over me . . . let that come for me unchallenged too. Just accept the apparitions and no one needs to question if I'm numbered among the sane.*

You must do more than accept, the thin, sharp voice hissed in his head. *If you would have the reward I've promised, you know you must do more.*

A reward? Ryan repeated, wasting irony on the echoes in his skull. *A world!*

The key to Uncle Graham's apartment was also in his pocket, but at least he knew there was no magic connected with its presence. He had taken it himself, stolen it from Mom's dressing table last night, while she and Dad lay sleeping, after he awoke from the dream. The key had arrived with Uncle Graham's body, in a small envelope entrusted to the funeral director's care by his uncle's landlady. Included with the key was a

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friendly note urging Ryan's mother to come to New York as soon as possible to see about the disposal of Uncle Graham's possessions. That was the word she used: *disposal.* When Ryan read it, he thought of a hungry hole in the universe, devouring even the memory of a life that had been—honestly, now—an inconvenience and an embarrassment to so many, even to those who owed it love.

Ryan leaned his head against the window, feeling a film of sweat form between flesh and glass. The black kid in the seat ahead of him lost another battle with the window catch and cursed it out with a fluency one of Uncle Graham's graybeard wizards might have envied, stolen, but never improved. Ryan sighed, a hot gust of breath that only added to the bus's burden of muggy air.

He hadn't known deceit could be so exhausting. His parents had no idea where he was, what he intended to do once he got there. They thought he was back at college. The day after Uncle Graham's funeral, back home in Clayborn, Ryan's father had put him on the bus almost before it was light. When it reached Philadelphia he had only stayed in the city long enough to get some things from his dorm and give his folks a call to tell them that he had arrived safely. Then he went right back to the terminal and took the next bus to New York.

What would they say if they knew? Mom would have a cat-fit, most likely, and Dad . . .Dad would look at him *that* way again. *Why does Uncle Graham matter so to you? He's dead now, safely dead, but you— Why, Ryan? Why care? You're not—?*

And the question, even in thought, would die away, withered by the chill fear Ryan saw in his father's eyes, the fear should his only son give him the answer he could not stand to hear.

No, Dad, Ryan responded to his father's phantom face as the heat drank him further into sleep. *I'm not, don't worry, I'm not like him. Remember last year, the time old man Pitt showed up on our porch, mad as hell, yelling for you to keep me off his daughter? God, I don't think I ever did anything in my life that made you happier, not even the scholarship. Just the hint that I was screwing a girl, some girl, any girl—!* He shifted his shoulders against the rough fabric of the seat back. *So now is it okay with you if I care about Uncle Graham? If I'm not gay, is it safe for me to love him now that he's dead?*

In his cupped hands, the little clay dragon stretched out a single paw and dug into his flesh with the talons of dreams.

So you're Ryan. Graham's told me all about you.

Slim and dark and exotic looking, only just into the beauty of his twenties, Uncle Graham's lover offered a hand that closed around the little clay dragon and cupped it in transparent flesh long since returned to earth. Through the milky prison of those ghostly fingers, Ryan could still see the dragon swirled roundabout with Christmas snow.

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Ryan patted the last handful of snow into the dragon's side and smoothed it down, embedding jagged holly leaves for teeth, clusters of the bright red berries for eyes. His hands were damp and cold, even through his mittens. Mom was on the porch, holding her sweater tight around her, calling him home. Uncle Graham stood beside her, laughing at what his eleven-year-old nephew had done.

You know, most kids make snowmen.

Ryan shrugged. *I like dragons.*

Uncle Graham put his arm around Ryan's shoulders. *Watch out, kid. If you're any good at it, you get to leave this town.*

Ryan grinned. Eleven years old, he was just waking up to the possibility that he might want to live out his life somewhere else besides Clayborn.

Christmas in Clayborn. Christmas in a place where there were still things like corner drugstores with real working soda fountains, and big autumn bonfires down by the lakeshore, and pep rallies, and church bake sales where everyone knew how each housewife's brownies were going to taste even before they bit into one. There were still such things as high school sweethearts here, and special pools of warm, sweet, private darkness, down the shady orchard lanes, between the rolling Pennsylvania farmlands, where a boy could take his best girl and see how far she'd let him go.

And this was where Uncle Graham brought his New York lover. Even without people *knowing,* Bill would have drawn stares. On Christmas morning he sat right up close beside Uncle Graham, resting his chin on Uncle Graham's shoulder while the presents were unwrapped, softly exclaiming the proper oohs and aahs of wonder and feigned envy as each gift was brought to light.

Ryan watched, fascinated. Whatever Mom had said about Uncle Graham's way of life, the reality was infinitely stranger. He sat on the floor, like Uncle Graham and Bill, and felt as if he were peering through an overgrowth of jungle vines at bizarre creatures never before seen by the eyes of civilized man. Bill's low laugh sent peculiar chills coursing over Ryan's bones. His mind blew a glass bell jar over Uncle Graham's lover and held him there, safely sealed away for observation.

Outside there was snow, crusted over, hugging blue shadows to every curve of the slumbering land. It threw back the brilliant sunlight in harsh assaults of dazzling whiteness. Ryan sat at his father's feet and looked up to see a taut jawline, a gaze fixed and fastened on Uncle Graham and Bill. Ryan felt his father's hands come to rest on his shoulders many times that morning—more times than felt right, when right means usual. The sunlight struck a wall of darkness cast by the shadow of the wings that Ryan's father called up out of empty air to mantle over his son. *This is mine; you won't touch him* hung across the room like a fortified castle wall that Ryan's father made and maintained and walked

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guard on from that moment until the day Uncle Graham and his lover left to go back to the city.

Ryan's father was not invisible and Uncle Graham was not blind.

There were no letters from Uncle Graham the rest of the winter, no calls, no more news than if New York were really a cloud kingdom full of so many sweet, glorious pastimes and amusements that the souls lucky enough to live there lost all track of time as it was reckoned on the earth. No one said anything, not even when Ryan's birthday came and went without a card from Uncle Graham, without a word.

And then, in late November, the telephone shrilled. Ryan answered. "Hello?"

"Chessie?" The voice was broken, shattered, and around the shards it sobbed the nickname Uncle Graham had always used for his beloved sister.

"Uncle Graham?" Ryan's cheeks flamed. His voice was changing. It was a sharp humiliation every time someone mistook him for his mother on the telephone. "It's me, Ryan."

"For God's sakes, Ryan, get your mom!" Uncle Graham's words stumbled through tears, his breath rags of sound torn out of his chest.

"What's the matter?"

"Just get her. Please."

So Ryan did as he was told, and when his mother got over the surprise of hearing from her brother after so long, there was worse to come. "How are you?" was slashed off into, "Oh, my God! Oh, Graham, I'm so sorry! When did he—?"

The little dragon shuddered in Ryan's hand, breaking the spell. His mother's face froze, then crackled into void, the shattering of ice over black water. Bill's death seized Ryan and roughly shoved him from the haven of his home, sending him lurching forward through the gateway of the hours, bright and dark. Bill's hand faded from ghostly essence to purest air, a cool breath across hot clay that shivered like an egg about to bring forth monsters, mysteries. Ryan's eyelids fluttered, but when he shifted his weight again, instead of the rasp of cheap seatcovering against his jeans he heard the genteel creak of fine leather as he settled onto the green couch in Uncle Graham's apartment.

Bill's funeral was over. Ryan didn't remember too much about it. Mostly he recalled the hot, angry eyes of hard-faced strangers in black. They scowled at him and Mom and Uncle Graham where the three of them stood huddled together on the far side of the open grave. He never found out who they were. The minister read through the service for the dead and Uncle Graham cried. Ryan saw one of the hot-eyed people—an old woman with blue-rinsed hair—writhe her red mouth around an ugly word before pressing a wadded lace handkerchief to her wrinkled lips and bursting into tears.

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Mom drove Uncle Graham back to his place in Manhattan, a downtown loft in what had once been an old factory. It was like having one big room for everything—eating and sleeping and watching TV. The only fully cut-off spaces were the bathroom and the kitchen.

There was also a space where Uncle Graham worked, a drafting board and an easel, the floor beneath both liberally freckled with paint. Some men left Clayborn on their wits, some on their brawn. Uncle Graham had soared free of the town on dreams of fantastic beings given life by brush and pen. The loft walls were hung with Uncle Graham's paintings, commissioned illustrations for books—wonderful, terrible, entrancing books, the kind of books that people back in Clayborn pronounced *cute* and bought, if they bought them at all, for their children.

The couch creaked again.

She's making tea.

Uncle Graham's ghost sat at the far end of the couch, head cradled back against the butter-soft upholstery, arms outflung, eyes fixed on the ceiling. He had his feet up on a coffee table that looked as if it had calved from a glacier.

"What?" Ryan's voice barely scaled above a whisper.

"I said your mother's in the kitchen, making tea." And Uncle Graham was suddenly no more a ghost than the twelve-year-old self through whose eyes Ryan now saw everything.

"Oh." Ryan rested his palms on the couch and felt perspiration seep between flesh and leather. They sat there that way for a long time. Ryan heard the shrilling of the kettle and the sound of traffic from outside and the familiar, comforting clanks and clinks of Mom fumbling about in a kitchen not her own. He knew she would sooner die than ask Uncle Graham where he kept things. Dad called it the female equivalent of how a man refuses to ask directions when he's lost on the road.

"Ryan?" Uncle Graham's voice came so loud, so abruptly, that Ryan jumped at the sound of his own name. "Come here, Ryan." Uncle Graham was sitting slumped forward now, his big hands linked and dangling between his knees. Ryan hesitated, fearing the great grief he saw in his uncle's eyes. Uncle Graham could see only that Ryan remained where he was. "Don't worry; I won't touch you," he said.

Ryan did not move.

"I'm clean, you know," Uncle Graham said. "Negative. Bill used to make fun of me, call me paranoid, but—" Some phantom sound escaped his chest, laugh or sob or cough quickly forced back down. "Anyway, like I said, I won't touch you. I promise. Your father wouldn't like that."

Suddenly Ryan wore his father's absence like horns. "'Couldn't get off work to come up here with us for the fun'ral," he mumbled.

"Of course not." Uncle Graham was too done out, too indifferent to challenge the lie.

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Ryan . . .

Ryan saw the green glow cupped in Uncle Graham's palm, the sheen of a perfectly applied glaze, the ripple of tiny, incised scales like feathers lying sleek on a bird's wing. He sidled nearer on the couch, the cushions squeaking and whispering under his thighs. He craned his neck to see what wonder his uncle held out as an offering.

"It's a dragon," Uncle Graham said, letting the small clay figurine tumble from his palm. Ryan's hands shot out automatically, catching it in midair. Uncle Graham laughed. "Nice fielding. You must be a star with the Little League."

A shrug was Ryan's answer. He was too busy rolling the dragon from hand to hand, feeling its weight, its slick finish, the cold beauty of its eyes.

"Hematite," Uncle Graham said, pointing out the gleaming shapes like silvered almonds imbedded beneath the creature's brow ridges. "It's supposed to center you, keep you calm, let you see all things with tranquility." He closed his eyes and passed one hand over his forehead, brushing away a flutter of black wings.

"It's beautiful," Ryan said. Here, alone with his uncle, he could say such things. At home, with Dad watching—so closely now, so carefully—he would have limited his comments to "Cool."

"It's yours. I made it for—I want you to have it." He opened his eyes and managed a weak smile. "Late birthday gift. Sorry I missed it."

" 'S okay." Ryan stroked the dragon's back. The beast was curled in around itself as if for sleep, wings folded back, forepaws demurely resting beneath the barbelled chin. The scaly lips were closed, except where the two most prominent fangs could not possibly be contained. But the eyes were open and saw all.

"Here we are!" Mom burst from the kitchen, triumphant, an assortment of steaming mugs on the tray she carried before her. She sandwiched Ryan in between herself and Uncle Graham, weaving her own spells of strength and militant normalcy from the clatter of teaspoons and the hush of sugar crystals cascading into tea. There were even some cookies on a plate.

"Mom, look what Uncle Graham gave me," Ryan said, holding out the dragon for inspection. "He made it himself."

"It's wonderful, Graham," Mom said sincerely. "Is this something new for you? Are you branching out from painting?"

"I am definitely making some changes," Uncle Graham said. They drank their tea. That was the last time Ryan saw his uncle alive.

That year at Christmastime Uncle Graham didn't come to visit. He never came to visit them again. There were no letters and no telephone calls, although once, on Ryan's thirteenth birthday, a flat, oblong package arrived for him from New York City.

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It was a book, a book enclosed between boards embossed with swirling gold and silver letters that eddied over depths of royal blue and green. "*In the Realm of Dragons,*" he read aloud, wondering why his uncle had sent him a picture book clearly meant for little kids. Then he saw the artist's byline and understood: Uncle Graham had done the illustrations. He let the book fall open in his lap.

Page after page of dragons mounted the purple skies of evening, beating wings of gold and green and scarlet. ("The dragon is a nocturnal beast. He loves the hours of darkness.") Youngling dragons peeped from shattered eggshells, stripling worms engaged in mock battles to establish territory and dominion. ("The dragon when it is grown chooses its company with care.") Maidens wreathed with flowers were led forth from villages paved with mud and manure to be offered up to the magnificent beasts, only to be spurned, or simply overlooked. ("It is a false tale that claims dragons desire the flesh of fair maidens, for what mere mortal beauty could hope to equal their own?")

And in the end, there were the pictures of knights—so proud, so arrogant in armor—swords bloodied with the lives of dragons. Here a warrior lurked like the meanest footpad to slay a dragon when it came to drink at a twilight stream. There the severed heads of many worms dangled as obscene trophies from the rafters of a great hall where lords and ladies swilled wine and grew brutish in revelry. The unseeing eyes of the dead were mirrors that hung in silent judgment over their supposed conquerors, each silvery globe giving back an image of man to make the skin crawl and the soul weep. ("Men slay dragons because they fear them, or do not understand them, or because other men tell them that this is what men do. And some destroy them because of how they see themselves captured in the dragon's eyes.")

The last page was an enchantment of art. A single dragon's eye filled it, infusing mere paper with a silver splendor reflecting Ryan's awestruck face. The boy reached out, fingers hovering a hairsbreadth above the sheen that pulled him heartfirst into the dragon's all-knowing gaze.

That night he dreamed dragons.

He woke into dreams, rising naked from a pool of waters silvered by twin moons burning low in a verdant sky. Drops of water fell from his wingtips, trembled at the points of his claws. Far away, over the hills where golden grasses nodded and bent beneath the wind's kiss, came the sound of hoarse voices mangling music.

He climbed the hills, his wings dragging the ground behind him. The air was sweet, heavy as honey. He shook away the last vestiges of human thought and opened his dragon mind to a universe unfolding its most secret mysteries. That was when he knew at last that he could fly.

The air was his realm; he laid claim to it with the first surge of his

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emerald-keeled breastbone against the sky. Its warmth bore him up from beneath with the steady love of his father's hands. His great head swerved slowly from left to right, his breath glittering with frost in the higher atmospheres, showering the bosom of the land with diamonds.

Below him he saw them, the villagers with their mockery of musical instruments, their faces upturned like so many oxen startled by lightning. The maiden was among them. They had dressed her in white, though even from this height he could see the thin cloth of her gown dappled brown with mud at the hem. Her arms were smooth and bare, her golden hair almost obscured by roses.

He felt hunger burn the pit of his cavernous belly. He stooped to the earth, wings artfully angled to ride the edges of only those air currents that would bring him spiraling down to his waiting prize. His mouth gaped, and licks of flame caressed his scaly cheeks like the kiss of mist off the sea.

And then air before him turned from native element and ally to enemy. The crystalline road solidified, a giant's hands molding themselves from emptiness. He slammed into the immobile lattice of their interlaced fingers, and the impact exploded into a sheet of dazzling pain, an echoing wave of light that hurled him back down the sky, back into the waters of the lake, back into the shuddering boy's body waking in its bed to the dark and loneliness and loss.

All that was left was a whisper: *Not yet. I give you this power, but you must earn its reward.*

Ryan hugged the sheet and blanket to his chest, cold with sweat, and asked the shadows for meaning. Then he became aware of something more than sweat making his pajamas cling to the skin between his legs. In silence, face burning, he stripped them off and stuffed them down the laundry chute, some part of his mind pretending that the gaping black slide into the basement would really send them falling into oblivion.

He did not like to think of the dream after that. He took the book from Uncle Graham and put it away in the attic.

The pulldown ladder to the attic's trove of dust and willfully forgotten memory was springloaded tight. The dangling rope that raised and lowered the hatch, improperly released, closed with a bang to jerk Ryan awake in time to bark his shins against the packing-crate coffee table in a friend's dorm room. He was waiting for someone. He had nothing to do while he waited. He glanced down at the table and picked up a magazine.

He didn't notice that it was a gay men's magazine at first. It was folded open to a beer ad. He picked it up out of boredom and thumbed through it out of curiosity. Uncle Graham's name leaped to his eyes from a photo spread covering the most recent Gay Pride march in Manhattan.

It was not Uncle Graham. Not with that face paint, not with that gaunt, ferocious grin like a wolf's skull. He wore clothing that was ill-con-

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sidered plumage, meant to startle. It only put Ryan in mind of how old whores were typed in older movies: spotty, papery, raddled skin beneath the monster's pathetic mask of carnival. Uncle Graham marched with arms around two other men, one in amateurish drag, the other sheathed in neon pink hotpants and a T-shirt cropped to leave his midriff bare. Across his forehead he had painted the letters H.I.V.

When Ryan went home for Christmas, he told Mom about the photograph. All she said was, "I know." She showed him the letters she'd written to her brother, every one returned unopened, refused. Only once had he sent her words back accompanied by his own, a piece of lined paper torn from a spiral-bound notebook and stuffed into a manila envelope with the rejected letter. *You never liked cemeteries, Chessie,* it said. *Why hang on the gate pretending you understand the business of the dead? You need magic to look through my eyes, and you were born fettered to the world. But there is magic, Chessie. It lives and walks at our backs, beautiful and deadly, and when it gets hungry it takes its sacrifice. If one of us had to make that payment, to have our heart betrayed, I'm glad it was me. Leave it so.*

Mom asked Ryan if he remembered Bill; he nodded. "He's trying to die," she said. "He's running after his own death. Even after what Bill did to him— How the hell do you argue with *that* kind of proof you've been cheated on?—even now he still loves him." Mom sighed. "If he finds what he's looking for, do you think he'd call to let us know? I can't bear the thought of him dying like that, without—" She began to cry.

Her tears were for nothing and for everything.

The little clay dragon sighed in dreams, rumbled with ill-banked fires. The rumbling rose up, but by the time it reached Ryan's ears it had become the urgent ringing of a telephone.

He was only half awake when he answered it, a towel swaddling his waist, up at a godawful hour of the morning because he'd had to sign up for godawful-hour courses in this, his second year of study. The toothbrush was still dripping in his hand while he heard his father's voice telling him that Uncle Graham was dead. Uncle Graham's head was shattered on the pavement in front of the old factory where he lived. The cops had called Mom even earlier that morning with the news. There was more that the police had told Ryan's father because they didn't think Mom could stand to know the other things that had been done to her brother. He shared it all willingly with Ryan because he thought his son was man enough to know, and because it was too much horror for one man to bear knowing alone.

And maybe too he shared it as a warning.

The closed casket under its blanket of roses blocked most of the aisle on the bus. Everyone from church was there, saying over and over again how talented Graham was and how wonderful his paintings were and

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how sad, how very sad that he was dead so young. Mrs. Baumann from the drugstore perched on the armrest of the black kid's seat and told Mom that at least Graham was at peace now. Comfort cloyed the air worse than the mingled reek of all the flower arrangements people had sent. Everyone was there, saying all the right things, leaving all mention of murder outside, with the dogs.

The black kid finally managed to jimmy the window enough so that it dragged in its track but slid open. The inrush of fresh air blew away Mrs. Baumann, the roses, the closed black box, blew Ryan all the way back into his old bed at home, the night after the funeral.

He lay there unsleeping, painting the ceiling with endless fantasies of should-have-told-thems. Drowsing at last, he rolled over onto his side and felt something jab him in the hip. He reached between the mattress and the box spring and pulled out Uncle Graham's book.

"I thought I put this away, up in the attic," he said aloud. The silver and gold letters on the cover glowed with their own light. Ryan licked his lips and tasted lake water. He opened the book and read it again, after all the years.

There was a page he found that might have slipped from memory, if memory could ever lose hold of images that clamored to be recalled. Two young men—squires, not knights—laid up a snare of marvelous cunning and cruelty outside a dragon's vine-hung lair. One peered from ambush, knotted club in hand, while the other stood at the cave mouth holding out a sapphire of untellable purity and fire. He was fair, the one who played the lure, his eyes the rival of the sapphire meant to cozen the venerable worm from sanctuary. Already a single green-scaled paw crept into the dappled sunlight. The lure smiled, cold and exquisite as a lord of elven. Behind a fall of rocks, his confederate readied the dragon's death.

Both their faces were plain to see. Not a line could be forgotten. Ryan closed his eyes, and still their faces were outlined against his sightlessness as if with wires burning white-hot. He threw the book across the room and bolted for his bedroom door.

He stepped from bare wood onto naked air. His wings snapped open without the need for any conscious command to reach them. His headlong fall became a naturally graceful glide that carried him down, down to the vast sea of forest and the piteous, defiant roars of a dying dragon and the face of a maiden, lovelier than any girl he had ever known, wreathed with roses.

I give you this power, but you must earn its reward.

He awoke knowing what he must do.

He awoke half choked by the stink of exhaust fumes as the bus pulled into the Port Authority terminal in New York.

Ryan did not have enough money for a cab so he took the bus downtown. He got off at the wrong stop, got lost, wandered in sullen pilgrim-

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age through streets where crumpled newspapers blew like tumbleweeds. Finally he broke down and asked directions.

It was sunset when he found Uncle Graham's address. A flimsy strip of black-and-yellow tape flapped wearily from the hinges of the big entry door to Uncle Graham's building. Ryan's taloned paws moved grandly, daintily overstepping the dull red-brown stains spattering the threshold and the sidewalk before it. Silence sang a hymn of welcome as he entered the loft, the last of the sunlight adding its own wash of color to the row of paintings Uncle Graham had left behind.

The girl from upstairs came down to see what was going on, alerted by the noise of a slamming door. Ryan told her, "I'm here to dispose of my uncle's things." He showed her the key and told her enough about Uncle Graham to convince her of his legitimate right to be there.

She shrugged, thin shoulders sheathed in stretch jersey glimpsed through thin brown hair. "Save it, okay? I couldn't tell if you're making it up or not anyway. I hardly knew anything about the guy. I mean, sure, I knew he was, like, gay, and he painted. I was scared for awhile after he got killed, but—"

"I really am his nephew," Ryan insisted, clutching the doorpost until he imagined he must have driven his talons inches deep into the wood.

"Hey, no argument. You got the key." Another shrug, welcoming him to help himself to the apartment and all found so long as he did not trespass on her well cultivated indifference.

She wasn't pretty. She was what the fashion world would call a waif. Ryan was more attracted to girls whose breasts were larger than orange pips. Still he invited her in. At first she declined, but she called herself an artist too. She had never had the chance to study Uncle Graham's work up close before. She might have come downstairs anytime while Uncle Graham was still alive and asked to see his paintings; she never did. She admitted to Ryan that the idea had never crossed her mind.

"Why not?" he asked.

Again that shifting of the shoulders to let a person slide safely out from beneath uncomfortable questions. "I didn't want to intrude. I thought, you know, what if he's got someone over?"

He found tea to serve her. She drank in short, dull slurps, her eyes forever darting sideways to keep him under surveillance. She wasn't pretty and she wasn't his type and he wasn't attracted to her at all.

What'samatter, Lundberg, doncha like girls?

He gave her all the charm he had, the way he'd done with Karen Pitt, the way he'd perfected with all the college girls he'd ever sweet-talked into bed, the way that proved to everyone who never asked for proof that he wasn't like his uncle. Before she left, he got to kiss her and buy back his peace.

Uncle Graham's bed was made of pale pine with a bowed headboard,

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the kind you order from L.L. Bean catalogs. One of great-grandma Ruth's handsewn quilts lay across it, a bearpaw design in red and blue. Ryan lay down on the bed, quilt and all, fully clothed, and rested the little clay dragon on his chest. He gazed into its silvery eyes until he felt the lake waters rolling off his flanks and the alien moons of the dragons' realm welcomed him home.

He circled the skybowl once, his scent marking air as his hunting ground and his alone. Below, he dreamed the peasants singing for him to descend and accept the sacrifice. *Later,* he thought, and the power of his mind rumbled across the sky like thunder. *When I have earned it.*

The thunder of his thoughts rolled back to overwhelm him, knocking him sideways into a spin. When he righted himself he saw that the green land had vanished, the crude songs of the rustics thinned into the braying of traffic, the shriek of sirens. The stone forest of the city stood stark against the moon. He dipped into the canyons, following a trail of vision.

It was easy hunting; he knew the prey. He found them with his mind, not with his eyes. They were in a bar, drinking beer, laughing and talking and sometimes trying to get the attention of the women. The lure was loudest, telling the women what he'd like to do to them, telling them how grateful they'd be, telling them they were frigid, bitches, bull-dykes when they turned away. The killer with the club only smiled, and sometimes one of the women would smile back. That made the lure scowl and call her a whore.

"Hey! What you starin' at?"

Ryan gasped with surprise as the lure's hand shot out and closed around the collar of his shirt, yanking him forward. Stale beer stank in his nostrils and sprayed saliva dotted his cheeks as the lure shouted, "What, you see something you *like,* faggot?"

"Get your fucking hands off me!" Teeth like steak knives ground against each other as Ryan smacked the lure's grip away. By chance one talon scored the skin of the lure's forearm, a long, shallow cut. Sapphire eyes widened in childlike awe to see the blood go trickling down.

"Shit, he pulled a knife on me!" he yelled.

"What knife? Where?" the killer drawled, glancing at Ryan's empty hands. "You're crazy, Ted, you know that?"

"Stinking fag *knifed* me," the lure insisted. "Goddamn it, this whole neighborhood's crawling with 'em, like roaches."

"Who are you calling a fag?" Ryan asked quietly. Being what he was, he did not need to raise his voice to make the menace heard.

The killer gave Ryan a slow and easy grin. "Don't pay attention to him. He's been drinking. He don't know what he's saying."

"No shit." Ryan readjusted the lay of his shirt, sounding so calm he astonished himself. He had no idea of how he had become real in this place, how these two, his quarry, had gone from being part of a dragon's vision

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to tangibility. He did not know why he felt the dragon's body on him so surely that he wanted to grab these men, shake them, and demand, *Can't you see what I am?*

"What the hell are you doing, talking to this guy?" the lure cried stridently, tugging at the killer's sleeve. "You see what he *did* to me?" He stuck his bloodied arm out for inspection.

"With *what?*" the dark one replied. He sounded bored. "A fuckin' fingernail? You see he don't got a knife, so with what? Jesus, grow up. You probably did it to yourself."

"With *what?*" the lure mimicked, spreading empty hands.

"Asshole," the other muttered and turned his back.

Ryan walked out of the bar. The air was cooler than it had been all day and there was the promise of rain. He walked to the corner to check the street signs. The bar was only two blocks away from Uncle Graham's apartment. *This is where it began,* he thought. He wondered which way they would walk when they finally left the bar. He hoped they would walk together at least part of the way. He needed them to be in the same place at the same time. Then, one fiery breath, one slash of his claws, one short snap of jaws that could sever the body of a full grown stag—

It is a well-known fact that dragons do not forget those they love. Their love is always loyal, sometimes blind. This is perhaps a failing.

He took to the sky again to scout his place of ambush. He was fortunate: The area was rich in alleyways. He landed lightly on the roof of the building across the street from the bar, warm tar underfoot making his paws itch, his toes curl. He set his silver eyes high, telling the hours by the slow journey of the moon.

His prey emerged when midnight was two hours gone. A woman was with them, holding fast to the arm of the killer while the lure tagged along behind, head down, shoulders hunched forward. Her hair was the color of lemon-yellow paint and just as lifeless, her face crumpled with rude laughter. She clung to the killer's broad shoulders, her stumbling feet scraping the sidewalk. The lure stared at her, disgust very plain on his face.

The three of them wove their way across the street, tracing the pattern of the drunkards' pavane. High on his perch, the dragon could still snuff up the reek of beer, sour wine, sweat, and old perfume. He flapped his wings once to lift himself into flight, taking care to do it so that the sound remained as muffled as possible. He wondered whether the men intended to share the woman and whether the woman wanted that. He knew that if they desired it, her wants would be nothing.

He hovered over them as they walked, a shadow on the pavement in their wake, a dark shape gliding over rooftops, safe from detection in a city whose inhabitants so seldom raised their eyes to heaven. He watched them stop at street corners to laugh; he saw them stop in the middle of the street to argue.

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"What the hell you doin', Ted?" The dark one glanced over his shoulder, the woman wrapped around him like a cape. "You still here? You wanna take a left back there on that last block if you wanna get home."

"I know how to get home." The lure's chin rose, daring his companion to contradict him. "I thought maybe you could use some help with her. You know, in case she pukes all over you before you get her back to your place."

The killer laughed. "Okay, come on."

"I'm not gonna puke," the woman objected. Her eyes narrowed as she glared at the lure. "You're just pissed 'cause you couldn't find someone to go home with you."

"Like I'd want to screw what comes into that bar," the lure replied loftily.

"Yeah?" The woman looked canny. "What *kind* of bars do you like, baby?" She made it mean things.

"Shut up, bitch," he snapped. He would have hit her if his friend were not there. The dragon knew this. As it was, the woman turned to the dark one, squawking indignantly.

"Hey, baby, it's okay, that's just him, he's a little nuts, you know?" the killer said. "Don't push his buttons, okay? And don't go saying shit like that about my buddy." Something in his voice tightened by an almost imperceptible degree. Drunk as she was, the woman sensed it. The dragon saw her cringe.

"I didn't mean nothing," she said.

"Like hell," the lure snarled. "'What *kind* of bars?' Like I don't know! Stupid damn—"

"She don't know you, Ted, that's all," the killer said. "If she did, she'd never even think of saying something like that about you." He showed his teeth, and the lure returned the gesture, a look too sharp to be just a smile. The dragon saw them exchange the secret of a crime in a single glance.

The dragon came to earth. By rights, the walls of the alley it chose should have been too narrow to accommodate its wingspan, yet they did. This place was perfect, only a few yards ahead on the prey's path, on a street whose emptiness was a gift. It waited. The argument was over. They would all continue down the street in this direction now. The dragon had decided on fire. Fire was quick and clean, if indiscriminate. It was too bad about the woman.

Footsteps rang on the pavement. The dragon's eyelids, smooth as shell for all their scales, drew back until the darkness filled with the silver light of its eyes. It heard the woman say, "What the hell's that in there?" and the killer answer, "Who gives a—?"

Then he had them. No deer was ever so transfixed by the headlights' glare. The brilliance of his gaze washed over them, a stark light to shear away everything but the truth. He gathered his breath for the flame.

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And in a distant room a dreamer held a book open to its last page, falling into the silver eye of a dragon and seeing only truth.

I can't.

The fire died in his throat. He felt the dragon's form, the dragon's power slip from him. The image of the rose-wreathed maiden blew away like dust. The splendor of his eyes dimmed and vanished, leaving the alley lit only by the spill of the streetlamp. Rain began to fall, mizzling, penetrating. He felt cold.

"Who's in there? Come out!" the killer shouted. The spell was broken. Ryan crept forward because he didn't know what else he could do. "It's the kid from the bar!" The dark one sounded genuinely surprised.

Not too surprised to seize Ryan's arm and squeeze it hard as he jerked him forward. "What d'you think you're doing, following us?" The fingers drove deeper into soft flesh. "You some kinda pervert?"

"I *told* you what he is!" the lure cried stridently. "I can *smell* 'em."

"Yeah, maybe you can," the killer muttered. His grip shifted to Ryan's shirtfront. "You were right the last time."

"Honey, let him go; he's just a kid," the woman pleaded.

"This *kid*—" he gave Ryan a shake to make his teeth clatter "—was in the bar before, trying to start something. What d'you wanna start, *kid?*"

"Watch out for him; he's got a knife on him," the lure piped up.

"Big deal." The killer reached into the pocket of his jeans. "So do I."

The blade snicked silver in the shadows. Ryan saw the reflection of his eyes along the shining edge. He remembered all the things that had been done to Uncle Graham, the things the police told Dad, the things Dad only hinted at to him, shaking. These two had only smashed his uncle's skull after they had done everything else they wanted. He heard a plaintive voice inside him say, *They killed me without a moment's hesitation, Ryan. I know I was looking to die, but like that? As less than a man, less than an animal, just a toy for willful, sadistic children? They'll kill you without a single regret. It will shatter Chessie's heart. Why didn't you destroy them when you had the power?*

And Ryan's heart answered, *Because that would make me one of them.*

"Jesus, let him *go*," the woman whined. "You're not gonna cut him, are you?"

"You don't wanna see, close your eyes," the killer instructed her.

"Oh, shit, you're crazy too." With a shake of her head she tried to bolt, but the lure grabbed her and held her fast.

"You don't wanna go running for the cops, *do* you?" he hissed in her ear. "Nah, I bet you don't." He seized her straggly hair and punched her hard in the face before she could scream. She groaned and folded to the ground.

"Hey! What'd you do to the bitch?" The killer spoke with the same heat reserved for street punks caught putting scratches on a new car.

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"Ah, so what?" The lure shrugged. "Like you can't do what you want with her now?"

The knife rose, a straight line of cold blue across Ryan's sight. He shut his eyes. A fist slammed into his shoulder.

"Uh-uh, pervert," the killer told him. "*You* gotta see it coming. I wanna see you see. Open 'em." Another violent shake of Ryan's shirtfront. "*Open* 'em!"

So Ryan opened his eyes.

Screams.

Screams not his, screams that battered his ears as the pure white light flooded the alleyway again. They jarred him free of his captive body, throwing him skywards into the rain. He gasped to feel chill droplets pattering over skin still human, then turned in wingless mid-flight to look down at what this release had left behind.

He expected to see the two men staring up after him, mouths agape like the lowest wonderstruck peasant of the dragons' realm. Instead he saw them crouching in the alleyway, on their knees in filth, hands trembling before their faces. He realized that they were trying not to look, trying to shield their eyes from the assault of sight. He let go his tenuous hold on the air and touched the ground behind them, beside the fallen woman.

He saw the dragon's eyes.

It was a great beast, huge, splendid, grander by far than the youngling worm that once housed Ryan's soul. The alley walls strained, bricks and mortar crumbling under the pressure of containing it. It lay with paws folded under its jagged chin, its gleaming eyes regarding the two men almost casually, in afterthought. There was no intent of a killing in its attitude. It only looked at them, slumbrous, steadily.

They tried to look away and could not, tried to close their eyes and found the lids frozen wide, tried to make screens of their hands and knew a strange paralysis that withheld that mercy. They had to look. They had no choice but to see.

And some destroy them because of how they see themselves in the dragon's eyes.

In one eye's curved and shining surface, the killer crouched in a dark place, jabbing sticks at phantoms, wailing with fear. His naked body was covered with lesions, his limbs skeletal, his face all blades of bone beneath a patchwork of bare, purple-veined scalp and pitiful tufts of hair.

In the other eye, the lure clung to the killer's arm, pressed himself against that towering, healthy body. He let his mouth wander at will, his eyes holding all the ecstasy of long-deferred fulfillment. His hands were everywhere, touching, caressing, claiming all he desired for his own. *I want this,* his image mouthed in the monster's mirrored gaze. *I've always wanted this . . . I've always wanted you.*

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The dragon raised his head and blinked once, shuttering away the vision. When he opened them again, he disappeared.

The two men turned to stare at each other, the rain running down their faces. The woman stirred and whimpered, waking. They did not hear her. Ryan stooped to murmur in her ear, "Get up. We've got to get out of here." She cursed and shoved him aside.

So he ran away. He ran alone, stumbling down the rainwashed street, wondering how far he would be allowed to go before the spell of the dragon's gaze broke, before the others came after him. He thought he could hear them behind him, coming up fast. His breath burned in his chest. He did not dare to look over his shoulder. His hunters were as certain a presence as the night. He could almost feel the icy breath of the knife on his flesh.

He ran harder, and the harder he ran, the thicker the air around him became. He needed to fight a passage through it. His feet were weights instead of wings. The wet pavement turned to tar, sucking him down, holding him back against his will, keeping him prisoner. There were more enchantments loose in this world than the magic of dragons. Dark things commanded more servants here than things of light. Ryan opened his mouth to scream for help and no sound came. Again and again he filled his lungs, again and again only black silence packed his chest and throat and mouth like wool. The tar hardened to stone, holding his feet; he could not move at all. He gathered his breath for a last cry before the hunters had him—

—and woke screaming in his uncle's bed.

He was sitting upright, stiff as a doll. His clothes stuck to his skin. The waterlight that came before the dawn whitened the windows. He swung his feet out of bed and heard a crunch underfoot when they touched the floor.

Beside the bed, the little clay dragon lay shattered. He picked up all the pieces, glad to see that they were fairly large. Some glue should fix it. He assembled it dry on the coffee table and studied the results. All that was missing was the eyes.

He made himself some instant coffee and locked up the apartment when he left. The street was damp and cool from the rain. Puddles of oil in the gutter gave back rainbows. He stood in the doorway, looking down. The threshold stains did not stand out at all now that the concrete was wet. Soon who would know what had happened here? He fingered the tattered end of black and yellow tape still caught in the door hinge and tore off as much of it as he could.

He wondered whether he should call the police when he reached Penn Station and give them an anonymous tip about who had killed his uncle and where to find them. He could describe them exactly, send the police to the bar that was their hangout—

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—if the police would take the time to listen to a caller who refused to admit how he knew so much. And if he explained? They'd believe it when the sky between worlds split open. But he had to do something. This was all he could think of to do.

He decided that the first thing he should do, even before he made the call, was to go and see whether there really was a bar where his vision had placed it. He began to walk.

The police cars were there when he turned the corner. Two of them were pulled up at the curb in front of the alleyway, blue and red lights flashing. The ambulance was sandwiched in between them. It wouldn't be going anywhere in a hurry, but there was no need for speed. The stretcher slipping away into the back held a zippered bag.

The killer glowered and shouted obscenities at the yellow-haired woman talking to the cops. His hands were manacled behind his back, but there was nothing to stop his mouth. Passersby on their way to work or homeward bound from a life between sunset and dawn stopped to listen. The man did not care for the rights he had been read, it seemed. He was willing to tell the world what he'd done. He didn't think of it as crime, but a service. He had cleansed, purified, rescued society from a monster. He was a hero, a knight, a slayer of unnatural horrors! How dare they call it murder, even when the victim had once been his friend?

"Honest, I don't know why," the yellow-haired woman was saying as the man was forced into one of the police cars. "We was all going along here, real late, and all of a sudden—"

She turned and saw Ryan. For an instant her bruised face flushed, then bloomed, its unmarred beauty embraced by roses.

Then the policeman said, "Ma'am?" She shuddered and shook off all seeming. She went back to telling the officer what she had witnessed.

Ryan stooped at the barricade of black-and-yellow tape. The rose was red without holding memories of blood or fire. It had no thorns. He breathed its fragrance all the way to the train station, all the way home. ●

We appreciate comments about the magazine, and would like to hear from more of our readers. Editorial correspondence should include the writer's name and mailing address, even if you use e-mail. Letters can be e-mailed to 71154.662@compuserve.com or posted to Letters to the Editor, *Asimov's*, 1270 Avenue of the Americas, New York, N.Y. 10020. Letters may be shortened and edited for publication. The e-mail address is for editorial correspondence *only*—questions about subscriptions should be directed to Box 54625, Boulder, CO 80322-4625.

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Walter Jon Williams

THE PICTURE BUSINESS

Walter Jon Williams lives in rural New Mexico, a fact that "compels me to perpetual war with mosquito and tumbleweed, and to lengthy disquisitions on the merits and failings of my tractor, the name of which is Beam." One of the author's most recent short stories for *Asimov's*, "Foreign Devils" (January 1996), won the 1996 Sidewise Alternate History Award for Best Short Form.

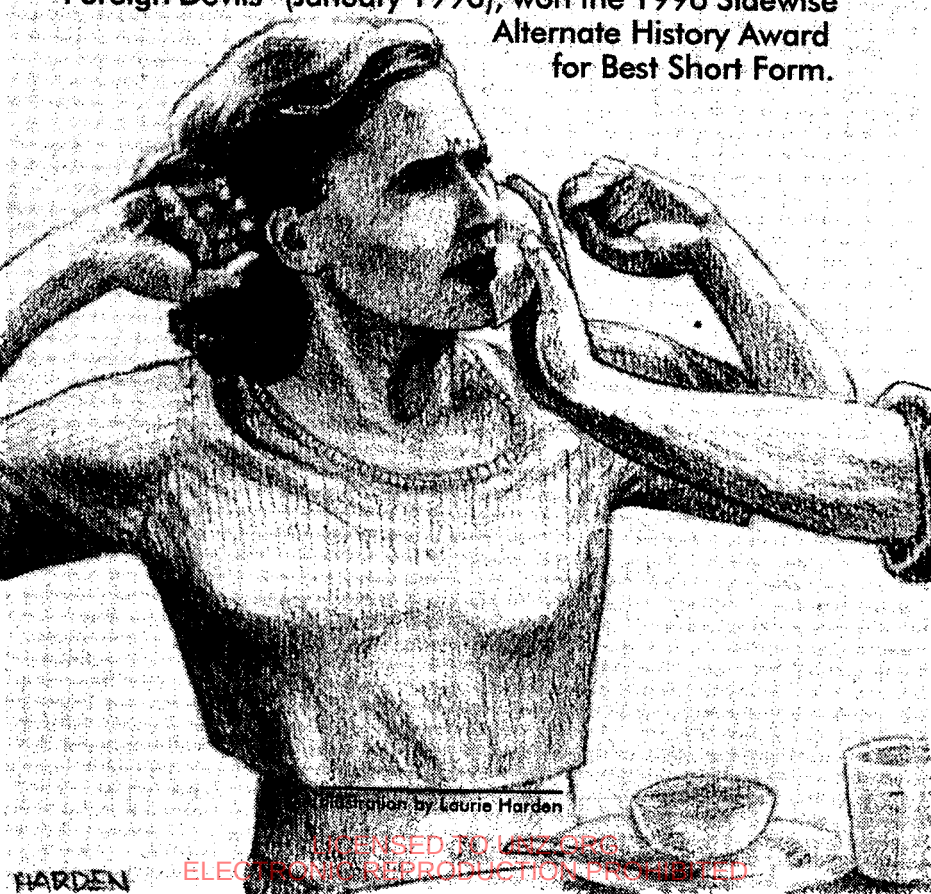

Illustration by Laurie Harden

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Norton had both a gambling problem and a communications problem. The communications problem consisted mainly of Norton's not listening when Helio told him about his debt problem. Finally Helio sent for Paulie.

"I want you to solve Norton's problem for me," he said, which Paulie did.

After Paulie dumped the body in a place he knew about on Saddle Peak, he returned to Norton's home in Topanga Canyon to make sure he hadn't accidentally left anything behind. He hadn't, but he liked the house, which was spacious and filled with light and had a beautiful view of Saddle Peak, where Norton was resting forever with all his problems solved for him, so Paulie sat down at Norton's computer, logged on, and did a little credit check.

He found out that Norton owned the place free and clear, having bought it with the profits when his parents, who owned a cheese farm or something in Wisconsin, had died in a boating accident. So Paulie packed all of Norton's personal stuff into cardboard boxes and heaved it off the redwood deck into the canyon below, and moved his own belongings from his apartment in Glendale. He changed the phone number and the locks, and told the post office that Norton's new address was "Post Restante, Paris, France." He sold Norton's cars and motorbike to a guy that he knew in West Hollywood. When the gardener and maid came by, Paulie told them he was the new tenant, and he'd be paying them from now on.

In Norton's office he saw the big mediatron console, the Digital DEC M5 with its three huge screens, but he ignored it. It was too big to toss off the deck, and besides it might be worth money if he could find someone to sell it to.

Not a single person ever came looking for Norton. That's how popular Norton was.

Paulie liked to be alone after orgasm. He liked just to lie there for several minutes with his eyes closed, and listen to the sound of his heartbeat as it returned to normal, watch little patches of phosphor light drift on the backs of his eyelids.

Women never seemed to desire this as much as Paulie did. Women liked to be cuddled and petted after sex, or they wanted to talk. Paulie *hated* talk after sex, he just wanted to float and be alone with himself. So Paulie usually preferred to have sex with women who wanted to leave afterward, because they had to go have sex with someone else.

Paulie knew that the escort service he used in Glendale was going to charge him an arm and a leg for driving all the way out past the Valley, so he looked in the yellow pages for a local service, and called the one in Malibu.

"Welcome to Gentleman's Paradise," said a staccato female voice. "If you have a push-button phone, press 1 now."

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Paulie pressed one, and the voice continued.

"If you would like a Model, press 1," the voice said. "If you would like an Actress-Model, press 2. If you would like a Supermodel, press 3."

Paulie pressed 1. He knew they were all the same women, but if they had a fancier title they charged more.

"If you want a Latin Lovely, press 1. If you want a Sensational Swede, press 2. If you want a Black Beauty, press 3. If you want a Gorgeous Geisha, press 4."

Paulie wondered what happened if you wanted a white girl who didn't happen to be Swedish, but he pressed 2 anyway.

"If you want a blonde, press 1. If you want a brunette, press 2. If you want a redhead, press 3."

Paulie pressed 3. He knew the answer didn't matter. He was only picking the color of the wig the woman would show up in.

"If you have special needs," the voice chattered on, "such as French, Greek, two women, or golden showers, please press 1. If you have age requirements, such as Lovely Lolita, Cheerleader, College Girl, or Matronly Vixen, press—"

Paulie hung up. After a few seconds, he called the number again and refused to press anything. Eventually a male voice answered.

"Yeah?" he said.

"Listen," Paulie said. "I want a white girl. For straight sex. Redhead. Not so young she pops gum in my ear the whole time, not so old she reminds me of my mother. That's *all* I want. Got it?"

There was a long silence, and then the man said, "I'll send you Gloria."

"Fine," Paulie said.

"I think she's just your type."

And what, Paulie wondered, did *that* mean?

Gloria was maybe thirty and had a nice woman-shaped body, generous hips and tight abs, and an unhurried manner. Paulie appreciated this last: he didn't like it when a woman tried to rush him through it, like she was anxious to just punch the clock and leave. He didn't like to be hurried, not when he was paying two hundred and fifty bucks in advance.

And, he was sort of surprised to discover, she was a real redhead, and not wearing a wig.

He told her that after he was finished, she should just get dressed and leave.

"You got it, big man," she said.

He lay alone in bed afterward, floating, while Gloria went into the bathroom. As he slowly rose to consciousness, he became aware of Gloria's voice coming from another part of the house. Paulie put on a bathrobe and followed the sound of the voice to the office, where he found Gloria standing next to the Digital while she talked on a cellphone.

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"You sure you can't get free?" Her voice was soft, suggestive. She rested a hip against the mediatron while she raised her foot and pulled on a shoe. "Just for a few minutes?" Apparently the answer was negative, because she pressed on with a more straightforward proposition, still in that soft, suggestive voice.

"I know you've got company, but if you could get away, we could meet at the Circle K, and I could give you a B.J. in the back seat."

Apparently the answer was still no, because Gloria said goodbye, then hung up.

"Looking for some business, huh?" Paulie said.

Gloria dropped her seductive tone to answer, and spoke in a normal voice.

"He's pretty regular, usually, but tonight his nephew is visiting with his family."

Gloria paged through a digital appointment book, poking repeatedly at the plus key with her thumb. "I don't have any dates till my 10:30." She held the speed dialer to the receiver and pressed another button. Paulie heard the book make blipping sounds into the phone handset, and then Paulie heard a dial tone.

She held the handset slightly away from her ear so that Paulie could hear a woman's voice answering. Gloria gave Paulie a meaningful look, then spoke in a brisk, businesslike voice.

"This is Mr. Steinberg's secretary. Is Mr. Mason available to speak to Mr. Steinberg?"

Mr. Mason was. As soon as he answered, Gloria's voice turned soft and seductive again.

"This is your lucky night, sugar," she said. "Here I am in Topanga Canyon with nothing to do but make you happy."

While Gloria worked out the details, Paulie went back to the bedroom and pulled on a pair of shorts and a T-shirt. He returned to the office to find Gloria hopping into her other shoe.

"I knew they called it hustling," Paulie said, "but till now I never knew why."

"Time is money," said Gloria. She glanced around the office.

"Are you in the business?" she asked.

Paulie looked at her. "The business?"

"The picture business. I figured you might be, because you've got the, you know, the mediatron."

"No. I'm sort of between jobs right now."

Gloria pulled on her grey jacket and fluffed the lace around her throat. She wore a conservative business suit to meet her customers, camouflage for hotels and residential neighborhoods. She wore more provocative stuff underneath. She buttoned the jacket, then swung her big shoulder bag onto one lapel. "Shall I call you next time I'm in the neighborhood?"

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"If you like."

Paulie followed her out into the driveway.

"Nice fuchsia," she said.

"Huh?" Paulie wondered if this was some kind of strange sexual compliment he hadn't heard before.

"Fuchsia. The plant you've got out here."

"Oh," Paulie said. "Thanks."

"The stuff on the deck out back," Gloria said, "is honeysuckle. And over in the corners, that's bougainvillea."

"No kidding."

Paulie saw that she had driven here in a Toyota pickup with a camper shell. Nice, he figured, for quickies on a mattress in the back.

Entrepreneurship, he thought, imagination, professionalism.

It was what made America great.

Next day Paulie had to fly to Detroit to solve someone's problems. After he came back, he decided to have a little housewarming celebration, so he asked Helio and Helio's brother Raimundo, and their associates Leo and Márcio, and had them over for drinks.

"Nice fuchsia," Helio said as he walked in.

"Thanks."

Helio stood in the foyer and gave the place the once-over. "Great new place," Helio said. "I didn't know you were doing so well."

"I got a great deal," Paulie said, "and I just kind of stepped into the place."

Apparently Helio had never been to the house when Norton owned it, and didn't know who it really belonged to. That was fine with Paulie, because if Helio learned the place was Norton's, he might try to make good on Norton's debt by selling the furniture, burning the place down for the insurance, or turning it into a fuck pad for himself and his girlfriend.

"Great place," said Raimundo. He was looking at himself in the gilt-edged mirror in the foyer. He smoothed down a lapel.

"Nice suit," said Paulie.

"It's a Princess Suwannee," Raimundo said. "She's expanded her line to menswear."

"Nice," said Paulie.

Raimundo lifted a foot off the ground. "You like the shoes? The belt? Gucci."

"Nice shoes," said Paulie.

"What's this?" called Márcio. He had walked into the office and noticed the mediatron.

"It came with the house," Paulie said. "It's some kind of virt thing."

Márcio, who spent half his life in virt when he wasn't running his crew, sat down before the console and started pressing buttons. He propped

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some virt shades on his forehead, then called up a list of files. "How about *Marilyn's Humpday Surprise,*" he sniggered, and touched the screen with his finger.

All three screens filled with the sight of Gary Cooper screwing Marilyn Monroe doggie-style. "This isn't virt!" Márcio complained. "It's just flatscreen!" He took off the glasses and tossed them on the console.

Helio looked at Paulie. "I didn't know you went for this stuff," he said.

"I don't," Paulie said. "It was on the machine."

Helio just wrinkled his eyes a little. Paulie knew that Helio didn't believe him, and that made him feel uncomfortable.

"Who's the skinny guy with the hairy butt?" Raimundo asked.

"Gary Cooper," said Márcio. He had probably cleaned up Dodge City with Cooper in the virts.

"Is he supposed to be famous or something?" Raimundo asked.

"He was a big star. Back before color."

"I *hate* black-and-whites," said Raimundo. "You got anything with real movie stars in it?"

Márcio poked around in the files and found a piece with Cher, Claudia Andropova, and Jack Nicholson in a three-way.

"Okay," Raimundo grumbled. "But Cher wasn't a *real* star."

"She won an Oscar," Márcio said.

"You're bullshitting me."

"You can look it up."

They stood around the office for a few minutes watching the three-way. Paulie asked if anyone wanted him to freshen their drinks. None of them did.

After awhile Márcio got bored with the three-way, and he called up a file with Robert DeNiro and Brooke Shields. Only it was the twelve-year-old Brooke Shields, digitized from *Pretty Baby* or somewhere, and Paulie noticed Helio and Raimundo, who both had families, giving him disgusted looks from under their eyelids as if he were a pervert.

"I'm tired of this," Helio said. He looked at Paulie. "You got anything on that machine besides porn?"

"I don't know," Paulie said. "I've never used it before."

It was worth one last try, he thought, to explain that nothing on the mediatron was anything he put there.

Márcio ran a finger along a touchpad and gave the mediatron's files a quick scan. "We got some Bruce Lee here," he said.

"Bruce Lee is good," said Helio.

What Helio said was good, the others watched. That was how things worked.

They got some chairs and fresh drinks and watched Bruce Lee break ribs and heads and limbs in *Enter the Dragon,* cheering and making learned professional observations as each of the bad guys bit the dust.

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"Now *that's* a good picture," said Helio. He gave a look at Paulie. "Not like that pedophile shit we saw earlier."

Paulie wanted to protest again that none of these images belonged to him, but he knew perfectly well there wasn't any point to it.

After the movie, Raimundo suggested going to a place in Santa Monica that he knew. Helio said that sounded fine to him, so that was the end of Paulie's party.

They drove down to the club in convoy, one car after another. Helio rode in Paulie's car and gave him a list of things that he needed Paulie to do in the next few days. Not solving problems, exactly, but preventing them, reminding people of their obligations so that they wouldn't *become* problems. Paulie said he would handle the situations.

"I know you will," Helio said, and then he said, "By the way, I talked to Little Joe."

Paulie thought about that for a moment, and then said cautiously, "You did?"

Little Joe had a lot to do with why Paulie decided to move from Providence to L.A.

"He says he understands about Big Joe. He understands that it was just business, and that there was nothing personal in it."

"That's good," Paulie said.

"He knows it was the Lukas that hired you, and he's taken care of the Lukas, so as far as he's concerned, that ends it."

Paulie didn't think he wanted to trust Little Joe's assurances anytime soon, but it was nice to know that Little Joe was at least being civil. Little Joe's basic problem was that he was a hot-tempered, vengeful little fuck, and every time Paulie's name came up he would start frothing at the mouth. Maybe by now he'd calmed down a little.

"I really appreciate this, Helio," Paulie said. "It's nice of you to go out of your way for me."

"You're a good guy, Paulie," Helio said. "I don't want my friends getting mad at each other over a misunderstanding."

"Thanks again," Paulie said. "I owe you one."

"Ever since you solved that Vitalio problem for me," Helio said, "I knew I could trust you."

Paulie was pleased to hear that. It was nice to know he'd found a place here with Helio, had established a good working relationship.

Still, he figured he was not going to test Little Joe's good will by flying to Providence anytime soon.

"Little Joe called you Taco Paulie," Helio said. "Is that what they call you out East?"

"Not to my face, they don't," said Paulie.

"I don't get it, the names these Eastern guys have," Helio said. "Crazy Al, Joe the Weasel, Fat Tony. They're all little boys' names."

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"Or baseball players," said Paulie.

Helio laughed. "Well," he said. "Here we call you by your grownup name."

"Thanks, Helio."

Paulie wondered if he was becoming a part of Helio's mob. He hadn't been part of anyone's mob back in Providence. Partly because he didn't have the right ancestry to become a made guy, not being Sicilian or anything, and partly because he'd noticed that sooner or later all the guys who were mobbed up got arrested whenever the authorities chose to pay attention to that particular outfit. Whereas those who worked independently, solving people's problems whenever anyone came up with the money, were almost never found out or arrested. Hundreds of people had their problems solved every year, but the people who actually did the work were almost never found out.

Paulie was in one of the safest lines of work available, criminally speaking.

So as he drove to the club he wondered if he was getting mobbed up with Helio, and if that was the right thing to do.

But if Helio could solve his problem with Little Joe, then maybe it was a good idea to get tight with him.

Maybe.

Paulie knew how everyone would behave at the club—which was make a lot of noise and spend a lot of money and eventually go home with a girl. Paulie used to enjoy this sort of thing when he was younger, but now he just went through the motions because it was what was expected. His girl was named Sondra, and she was a model-slash-actress who was working temporarily at the cosmetics counter of a pharmacy. He didn't want to bring her home, so instead he drove her to her apartment. She kept asking him questions about her appearance: "Do you like my hair?" "Do you like my dress?" "Do you like my shoes?" And when he said "Yes," which was expected of him, it led her into a long conversation about how she had chosen, say, this particular hairstyle, and a description of the other hairstyles she had considered and rejected, and how this particular hairstyle should help out at the next audition.

This pattern of question, answer, and elaboration went on before, during, and after sex, depriving Paulie of the time after orgasm that he liked to spend by himself, floating—in fact, she wanted him to spend that time looking at her modeling portfolio. He glanced at some of the pictures out of politeness, and Sondra told him all about the different hairstyles and fashion choices and so on involved in each picture, and he figured he had been polite long enough. He told her he had an early day tomorrow and had to leave.

"I'll call you," he said as he headed for the door.

Sondra closed her portfolio and looked sullen. "No, you won't," she said.

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He thought about it for a second. "You're right," he said.

And left.

Next morning he answered the phone, and a seductive voice said, "Hello, big man. It's your lucky day."

"Hi, Gloria," he said. He was surprised to discover that he was glad to hear her voice.

"I'm going to be in your neighborhood today. You want to get together?"

"When?"

"Well, I've got an appointment for a facial in Malibu at 11:30, and then I've got a date in the canyon at 1:30. Say 2:30?"

"Your 1:30 will be finished that soon?"

"Oh yeah."

Gloria seemed confident on the matter.

"Okay," Paulie said. "I'll be here."

Paulie spent the intervening time on the DEC. He had decided to delete any of the files that might embarrass him in front of company, but in order to do that he had to figure out how the unit worked. Loading or deleting files wasn't difficult, not to anyone with basic computer skills, but there were hundreds and hundreds of files, not all of which had obvious names like *Marilyn's Humpday Surprise,* so he had to load each one to see what it was before he could decide whether to delete it or not.

And so he found out how it was that Norman earned his living.

Norman acquired ordinary porn films, some of them pretty old, then digitized the faces and sometimes the bodies of famous actors onto the images of the porn actors. Apparently there was a demand for this sort of thing, and Paulie also found patches of porn intended to be inserted into famous movies. There was Clark Gable carrying Vivien Leigh up the staircase, ripping off her clothes, and fucking her silly to the romantic strains of a full orchestra, obviously intended to be spliced into someone's home version of *Gone with the Wind.* There was Cary Grant and Eva Marie Sainte screwing in a train compartment in *North by Northwest,* and Bogart and Ingrid Bergman in *Casablanca,* and even William Shatner and Leonard Nimoy indulging in some stately futuristic buggery. Some of the clips were done better than others, with the famous actors' faces and bodies fading seamlessly into those of the porn actors, and even characteristic facial expressions didged into the mix; while others were done poorly, the heads stuck on any old how, with a clear dividing line between one image and the other, and no attention paid to matching skin tones, amounts of body hair, and even body type. Paulie concluded that Norman did just as much work on any one job as he was paid to do.

As for the porn itself, it was porn. As was usual with porn, Paulie found it sort of interesting for the first ten minutes, and then it started to lose its charm. He found himself paying more attention to the didge work,

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how the famous faces were superimposed on the anonymous porn actors, precisely how the matching was done. He ended up saving some of the well-done bits, and erased everything that was second-rate.

There were entire films in the files that seemed to have nothing to do with Norman's work. Maybe, Paulie figured, they were the ones he watched for his own entertainment, or maybe they just came with the mediatron.

One of them, he noticed, was *Public Enemy*. Paulie had sometimes watched pictures about the kind of guys he knew, and he'd always been disappointed because they'd never really told the truth. But since he was tired of looking at porn, and because Gloria hadn't turned up yet, he told the mediatron to run the file.

It was sort of interesting. The characters were just ordinary people who happened to get into the bootleg line, which strained Paulie's credibility until he realized that this was about how gangsters got *invented,* it was about the very first people in his world. He had never seen James Cagney before, and he liked both the actor and his portrayal. He knew people just like Cagney's character.

He watched until he felt a hand on his shoulder and heard a voice. "Hello, big man."

He turned his chair around to look at her. She had shucked out of her conservative business suit and stood in the black lace teddy she wore underneath.

"Hi there, Gloria," he said. "Your 1:30 finished already?"

She slid onto his lap. "I'm late," she said. "I'm disappointed you didn't notice."

"I was watching a movie."

"I can give you something better to do with your time."

Paulie reached past Gloria to the mediatron console and paused the movie.

"You bet," he said.

Paulie floated, rising slowly to the surface of the world. He opened his eyes, saw Gloria sitting quietly in a chair, watching him.

"You're not on the phone drumming up business?" he asked.

"Nope. I already called everyone in the neighborhood. I don't have a date till 6:30."

"So what are you gonna do?"

She shrugged. "Find someplace to hang out, I guess."

Paulie sat up, swung his legs out of bed, and reached for his shirt.

"Wanna watch a movie?" he asked.

Paulie found himself squirming during the last part of *Public Enemy*. After it was over, he snapped off the mediatron with a grunt of annoyance.

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Gloria looked at him. "Something wrong?"

"What a chump," Paulie said.

"You didn't like the ending?"

"I thought Cagney was supposed to be a bright guy. Here he is, inventing how to be a gangster and everything, and he just doesn't get it. He doesn't get the picture."

"Well, yeah, some other gangsters kill him."

"It's not that he gets *killed.*"

Lots of people Paulie knew got *killed.* Getting *killed* was nothing.

"It's the way he—it's how he—" Words failed him. The movie just wasn't *right,* and the mistakes were so basic that he had trouble working out just what they were.

"Okay," trying again. "He's part of this outfit, and this other outfit comes into town and starts giving him trouble, right? So does Cagney's outfit give the other guy's outfit trouble?"

"No."

"*No.*" Paulie smacked his palm with a fist. "*Exactly.* Cagney's outfit decides to *surrender!* Which is stupid, because they are established on this turf and the other outfit is not, and they have all the advantages. And it's even stupider, because they don't even *tell* the other outfit that they're giving up, and Cagney and his boss get killed *after they've already surrendered.*"

"They didn't want to hurt anybody," Gloria pointed out.

Paulie waved his arms. "They are *wise guys!*" he said. "They are *in the hurting business!*"

Gloria nods. "I guess I see your point."

"They gotta know what world they're living in. You know what I'm saying?"

"Sure."

"Like the way Cagney handled that woman."

"Hitting her in the face with the grapefruit."

"Right. Now is that any way to cope with some girl that's giving you grief?"

"I guess not," Gloria said.

"You bet. A *grapefruit?* I woulda tied her up and left her in the fucking closet."

Gloria seemed startled. "Huh?"

"Slapped her around first, then tied her up and, like, maybe called in a replacement."

Gloria looked at him thoughtfully. "A replacement," she repeated.

"An escort or something. Boink her in front of the stupid blonde to show that she can be replaced."

"Replaced," Gloria repeated, as if she was reaching for a meaning of the word she hadn't encountered before.

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"*Anybody* can be replaced," Paulie said. "I mean, you think Cagney had this woman around for the pleasure of her conversation or something?"

"I guess not."

"She's getting nice clothes, nice jewels, a nice fuck pad to live in, and she starts giving him grief first thing in the morning? Right over breakfast? She was taking *advantage*. She needed a lesson. Just to show that she could be replaced."

Gloria appeared to be trying to clarify something in her mind. "So if *I*, for example, were to complain to you in the morning—"

"Two hundred fifty bucks an hour," Paulie pointed out, "I'd better not hear any complaints."

"Ah."

"Besides," Paulie added, "you're not as dumb as that cooze in the movie."

She looked at him. "Nice of you to notice."

"So the problem with Cagney here," Paulie said, "is that he kept letting people take advantage of him, and it got him killed. Which is why that other outfit, who ain't even in the movie, are the real smart guys, and the movie should be about *them*."

"They're the heroes, you mean."

"Yeah." Paulie found himself glaring at the empty screen, upset with Cagney's sheer stupidity. "Cagney should of just got himself some firepower and put that other outfit outta business."

"Well," Gloria said, "if you don't like the ending, you could change it."

"Huh?" Paulie looked at her in surprise.

She gestured toward the mediatron. "You've got all you need right here. Right in the mediatron. You could put any ending you want on that movie."

"I don't know how to work it. Not really."

Gloria sniffed. "Anybody can learn to work a mediatron. A while back I trained for a year in order to learn how to work one of the old SceneImagers, but then *this* thing came out, and there went my three-hundred-buck-an-hour job. Nowadays clerks at McDonald's are paid more than mediatron operators."

"Oh." He looked at the mediatron, then back at Gloria. "Will you teach me?" he asked.

"At two-fifty an hour?"

Paulie laughed. "Maybe I could hire somebody from McDonald's."

"Yeah, okay," Gloria said. "I'll get you started. But I've still gotta make my 6:30."

After Gloria left, Paulie sat down at the DEC and tried to work out how to change *Public Enemy* into a movie that showed the world he knew. Gloria had managed to demonstrate a lot in just a short time, but

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there were still gaps in his knowledge. Fortunately there were a number of Norton's projects, left in various stages, that illustrated how the machine could be used.

Generating whole new scenes was possible, though it seemed to require a lot of programming skill, and the mediatron was better at converting images that already existed, when he could point-and-click one image over another, and then craft in as much verisimilitude-enhancing detail as he liked. There were a lot of complex programs devoted to facial expression. Norton had a vast number of stock images on file that he used in his adaptions, but the majority were pornographic. If he wanted to make every change he wanted, Paulie would have to get some more stock footage.

It was easy enough to find on the net, he discovered, particularly the violence he intended to use in his last ending. And a whole log of props were available: digitized, three-dimensional images of old cars, airplanes, and clothes. But splicing it all together took time, and digitizing the old actors' images over the footage took even more, and there were suddenly a number of professional engagements that took time away from Paulie's project. Helio kept him busy, and since he sometimes worked for other people, he also had to fly to Boston—which was as close as he wanted to get to Little Joe for now—to New Orleans, and to Cabo San Lucas.

In Cabo San Lucas he took a few days off. The fellow whose problems he solved had a fishing boat, and so after Paulie weighted him and dropped him into the Sea of Cortez, he kept the boat for a few days, caught some albacore and tuna, and tried to relax.

But the old movie kept nagging him. When he closed his eyes, he kept seeing images, bits of the old movie mixed with parts of his own creation, and he kept working out dialogue in his head. Eventually, though he'd planned to stay a couple of more days, he left the boat and returned to Topanga Canyon and the mediatron.

He found a lot of old books about movies on the net—they always called the movies "film," even though it was all digital now—and he tried to learn about how movies were put together, about jump-cuts and two-shots and fades and montage, all the stuff that the film critics thought was important.

He had to find out about that stuff, because *Public Enemy* used a lot of old-fashioned techniques, like lap-dissolves, that nobody ever used anymore, but which Paulie would have to use in order to make his new scenes match the old. The books on film called lap-dissolves "literary," and jump-cuts "in your face," and said that modern editors only used jump-cuts.

Paulie kind of liked the dissolves, though. They put a different kind of unhurried rhythm to things.

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When he wasn't out of town or working on Helio's projects, he saw Gloria two or three times a week. She'd call if she were in the vicinity, and after sex he'd show her the parts of the movie he was working on, and she'd give him programming ideas and pass on bits of technique.

Not that he didn't have plenty of ideas on his own.

Once, when he was showing a bit of the movie where Cagney was getting his revenge on the mob that had moved into his turf, Gloria shivered and said, "The dead people in your movie look so *dead*."

"Well, yeah," Paulie said. "That always bothered me about movies. When people die in the movies, they don't really look dead, because the *actors* are still alive. An actor can't fall like a real dead person, because the dead person isn't *in charge* anymore. A dead person just drops—the shoulders falls in one direction, the hips someplace else, and the knees so in another place, because the only thing holding the body together anymore is skin and maybe a few big bones, the muscles that support it all ain't working anymore."

He went on to explain the mediatron hacks he used to make the dead cinema bodies behave correctly—it involved disconnecting certain elements of the geodesic structures that underlay the images, and he was proud of how he did it.

Gloria listened thoughtfully, then looked at him. "How do you know so much about how people die?"

Paulie looked right back. "Because I know what's what," he said.

Gloria turned away and nodded, as if to herself. "That's what I thought."

"I'm also thinking of changing the title," he said.

"Hm?"

"*Public Enemy* could be the title of *any* gangster film. So I thought this one should have a title that explains more what it's about."

"Like what?" she said.

"Like *How Gangsters Got Invented*."

Gloria nodded, then turned away. Paulie saw that her shoulders were shaking.

"Are you laughing?" he asked.

Her shoulders kept shaking. She nodded her head, but couldn't speak.

Paulie rose from his chair and stood over her, and planted his fists on his hips.

"Is there something funny about my title?"

Gloria, her back still turned, shook her head. "It's . . . *perfect*," she said, and then began to laugh. She smothered her laugh with the back of her hand, but she couldn't keep it from burbling out.

"If the title's so perfect," Paulie said, "how come you're laughing?"

Gloria began to laugh and hiccup simultaneously. She reached in her big shoulder bag for a tissue. "It's perfect," she gasped, "for *you*."

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"Whaddya mean for *me?*" Glaring. "It's good for me, and it's not good for someone else?"

He was *not,* he thought, going to spend two hundred fifty an hour to be laughed at.

Gloria's hiccups got the better of her for a minute or so. Paulie considered grabbing her and throwing her off the deck to join Norton's garbage in the canyon. But then, in between the little chirps she made when she hiccuped, Gloria explained herself.

"It's a perfect title for *your movie,*" she said. "It's so *you*—it just gets right to the point, doesn't it? No time wasted, no fooling around, no poetry. *How Gangsters Got Invented.* Right to the heart of things."

"No *poetry?*" Paulie demanded, still annoyed. "I'm supposed to be a *poet* now?"

"You're perfect," Gloria hiccuped, "just as you are."

Paulie stood over her and glared for another minute or two, but he couldn't stay mad at someone who thought he was perfect. He returned to his chair in front of the mediatron console.

"Maybe you should get on your cellphone and hustle up some business," he said. "I'm going to work for a while."

Paulie finally finished editing his new ending. All the clips of violence he was using were in color, and he had put them through this process called "color-timing," which made sure that the various shades of blue matched from one scene to the next—the mediatron did it automatically, in about twenty minutes—and then Paulie remembered that he might as well not have bothered, because he was going to have to turn it all into black and white to match the original footage anyway.

He ran the ending through the mediatron again, using all three screens. It was, he thought, really good; and he hated to lose the element of color, because there was this kind of visual motif of red that ran through everything. It had started accidentally, with blood getting spilled in a massacre, and in the next scene a woman bystander happened to be wearing a red dress, and Paulie thought the continuity of color was interesting, so he kept adding more. Some red roses in a flower shop that got bombed, and a red car that Cagney used for a drive-by, and red neon signs and red shoes on the women and red ties on the men, and red marinara sauce in a restaurant where somebody ended up face-down at his table . . .

And now he was going to have to lose all that. Damn.

And then he thought, wait a minute, maybe I don't.

Because the movie was about how gangsters got started, back in the days of black-and-white; but the ending was about how they survived, right up into the era of color and virts. So maybe the ending could stay.

He spliced the new ending into the old movie and watched the transi-

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tion. No, he thought, too jarring. The sudden shift into color took him out of the story, made him aware of the fact that he was watching something artificial instead of something real.

So maybe, he thought, the color could start more subtly. Like when Cagney's boss was killed. So he went through and turned the scene black-and-white, but then added color to the blood splashes. Only slight color, not anything bright. He liked the subtle effect, so he went through the ending scene-by-scene, adding more color each time, making the reds brighter and brighter, until the final scenes blazed with color, more color than there ever was in real life.

He liked it, but he felt a bit uncertain whether other people would enjoy it or not. He'd never seen a movie that was partly in color and partly not, except for that dumb Oz thing he saw when he was a kid.

Maybe, he thought, he should do what they call a preview. So he got on the phone and called Helio.

"I'd like to invite you and some other people over Saturday night," Paulie said. "I've got a movie I'd like to show you."

"What kind of movie?"

Paulie detected a degree of suspicion in Helio's voice. He wanted to reassure Helio that it wasn't pornographic.

"It's a sort of a gangster movie, Helio."

"I don't watch gangster movies," Helio said. "They never get anything right."

"I know what you mean," Paulie said. "But I sort of fixed this one."

"What do you mean, fixed it? "

"I found this movie on the mediatron, and it was wrong, so I fixed it. I put a new ending onto it, and I made some other changes."

"You mean you made this movie?"

"I made parts of it, yeah."

"Well." Paulie could tell that Helio was impressed. "Sure I'll come and see it. But is it a movie I can bring my wife to? She's kind of conservative, and I don't like to get her upset."

Paulie thought about it for a moment. "It's a little intense in places," he admitted.

"Could I come Friday night instead?" Helio said. "Friday night is the night for girlfriends, Saturday night for wives."

And Sunday morning for church, Paulie knew.

He should have remembered that Saturday was Wife Night. Not being married himself, he hardly ever thought about these distinctions.

"Sure," Paulie said. "Make it Friday night, then, and bring your girlfriend."

He called Raimundo, Leo, and Márcio, and invited them and their girlfriends for Friday. And then he realized he didn't have a date for himself.

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Gloria probably didn't count as a girlfriend, since he was paying her and everything, but she would have to do.

He realized then that he didn't have her phone or beeper number. Once they'd first met, *she'd* always called *him*.

He called her service.

The man recognized his voice. "You're white, redhead, straight sex, no kink, no kids," he said.

"Yeah," said Paulie.

He asked the service to page Gloria, and when she returned his call, he told her he wanted her for all of Friday night.

"Friday's a busy night for me," she said. "I've already got a couple dates scheduled."

"Can you break them? I'd make it worth your while."

"What's the big occasion?"

Paulie explained.

"So this is a social event? You actually want me as an *escort?*"

"Escort," Paulie said. "Yeah."

"Wow."

"And could you, uh . . ." Paulie was embarrassed to continue.

"Could I what?"

Nothing to do but plunge on. "Could you tell everyone that you're my girlfriend?" he said.

Gloria gave a low laugh. "I'm *already* your girlfriend, sugar," she said.

Paulie called a caterer and had them send food—ham, chicken, cold cuts, and various salads—and he fully stocked the bar. He got a bowl of cocaine for the younger guys and their dates, and put some bottles of Bollinger on ice. Gloria turned up in a print summer dress that made her look just like a girlfriend. And she surprised him by wearing a blonde wig.

"Don't all wise guys have blonde girlfriends?" she asked.

The other guests arrived. Raimundo brought his new squeeze, and Paulie was surprised to see that she was Sondra, the actress/model he'd met in Santa Monica. She had a new, shorter haircut, and was blonder, if possible, than before.

"Nice haircut," he said.

"I told her she should get it done that way," Raimundo said. He started caressing her hair from behind, like a hairdresser. "She has pretty ears, don't you think? So we agreed that she should sweep her hair back above the ears so that everyone could see them, and keep it short in back, so that the diamond necklace I was going to buy her would show."

Paulie looked at the necklace. "Nice," he said.

"The links are little gold flowers in the shape of chrysanthemums," Raimundo said. "With a diamond in the center of each one. We consid-

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ered a lot of them, though. We thought about this kind of interlaced rope design, and there was this other one where each link was a bird in flight, but we decided we liked the chrysanthemums best."

"Nice necklace," said Paulie.

He was glad he hadn't called Sondra again, otherwise he'd be babbling about her fashion choices just like Raimundo.

Before they could get to Sondra's dress and shoes, Paulie asked if they wanted drinks, and when he brought Sondra hers, he suggested that she maybe not tell Raimundo about the night she and Paulie had spent together.

"You think I'm stupid or something?" Sondra asked.

The answer to that was a big Yes, but Paulie protested that he had meant no such thing. When everyone had arrived and had drinks—or a toot, depending—Paulie showed them into the office, where he'd set up the buffet and some comfortable chairs, and he ran *How Gangsters Got Invented.*

As soon as the opening titles came up, Raimundo started to complain. "Does it haveta be black-and-white? I *hate* black-and-white."

"Just watch," Helio said firmly, and what Helio said went, so they all settled down.

Paulie found as the movie went on that he was nervous. His heart beat hard and perspiration broke out on his forehead. Gloria noticed his nervousness and took his hand and held it in her lap.

He held his breath through much of the grapefruit scene, though he heard shouts of "Yeah!" and "Give it to her!" from Márcio and Raimundo, so it seemed to be going all right.

During the end he held his breath and clutched at Gloria's hand. He could hear little grunts and exclamations from the others in the audience at the point where each realized that the movie was shifting into color. During the last few minutes of violence, with explosions and chases and Cagney machine-gunning everyone in sight, he heard shouts and cheers. At the end, there was applause.

Gloria turned to him and whispered into his ear. "I was wrong," she said. "You *are* a poet. I don't know what Norman Vincent Peale or those other poets would think of you, exactly, but you're a poet, absolutely for sure."

That made Paulie feel good. He turned the lights on and saw that everyone was grinning. "That was terrific!" Márcio told him. "I hardly ever like flatscreen any more, but that was a good movie."

"Real triff!" said Raimundo. "That ending, with all those people getting shot, that was great!"

"It's called montage, see," Paulie explained. "That's where you have a lot of different pictures, only you edit them together in kind of like a rhythm—"

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"It's the only gangster movie I ever liked," Helio pronounced.

Paulie looked at Gloria. "It was Gloria's idea, really."

"Smart lady," said Helio.

"I didn't like all the color at the end," said Leo. Paulie felt himself tense.

"Well, see, I thought I would bring it into modern times," he said.

"Yeah!" Márcio agreed, "like from the time of black-and-white into the time of color!"

"I see what you mean," Leo said, "but I still didn't like it changing that way. It was too much like *The Wizard of Oz*."

Paulie wanted to punch Leo in the face. "Well, see—"

"Too bad," Márcio went on, "that you couldn't bring it into the virts. Everyone could *become* Cagney, see, and shoot all the bad guys."

"That grapefruit scene was disgusting," Sondra said.

Everyone looked at her.

"Beating up his girlfriend, then bringing in some hooker?" Sondra said. "Nobody should treat a woman like that."

Paulie wanted to rip her throat out.

"Well, see . . ." Raimundo said, uncomfortably.

"She deserved it," said Márcio. "She was just whining all the time, and . . ."

"Nobody deserves treatment like that!" Sondra said. "Nobody deserves to get hit!"

The men all looked at each other. *Nobody deserves to get hit* was a concept alien to their world-view.

Raimundo went up to Sondra and patted her shoulders in an ineffectual way as he tried to explain. "No, darling, but see," he said, "she was *asking* for it, she was complaining and he just . . ."

"So if somebody complains, she deserves to get hit?" Sondra's voice was shrill.

Paulie saw a nasty grin on Márcio's face as he said, "When she don't got nothing to complain about, darlin'," he said. "I mean, it's not like he was married to her."

So then Sondra started to yell about how bad it was to hit people and how it shouldn't make any difference if they were married or not, and so of course Raimundo, in order to demonstrate that he could keep his woman under control in front of his friends, was forced to hit her; and that just made her louder, so Raimundo hit her again, and she ran crying to the bathroom, and a couple of the other girlfriends rolled their eyes and went to join her.

Raimundo stood there in the middle of the room, his face bright red, flexing his hands over and over. Helio put a hand on his brother's shoulder. "You *had* to do that," Helio said. "It's time she learned what's what."

"Yeah," Raimundo said, and flexed his hands some more.

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Paulie pictured to himself Raimundo explaining to people that he and Sondra decided that she needed two bruised eyes in order to call attention to the subtle purple stripe on her new outfit.

Márcio just smirked and poured himself some more Bollinger.

"Well," Gloria said, as she handed Paulie a glass, "the critics have had their say, but I think your movie's still a hit."

"Yeah?" Paulie asked.

"Yeah."

Paulie scowled. "I think critics should get killed."

Gloria patted him on the arm. "Not now, big man. Be gracious on your big night."

The rest of the party turned out okay. Sondra sat in a corner and sulked, but everyone else was high on the movie, on violence, or on something else.

"So what's your next project?" Helio asked Paulie as he was leaving.

"Whatever you want me to do, Helio."

"No, I mean, your next movie."

Paulie had to stop and think for a moment. He hadn't considered this. "Maybe *Godfather Part II*," he said. "You know that scene where Corleone goes back to Sicily to get revenge on the guy who killed his family? And he just slits the guy up the middle with a butcher knife? That doesn't make any sense—I mean, hasn't anyone in this movie ever heard about *ribs?*"

"Why fool around with somebody else's movie," Helio said, "when you can make your own?"

Paulie looked at him in surprise. "Yeah?"

"Why not? And hey, listen, I know some people on the distribution end. You make the right product, you could get it put into actual theaters, you know, where you can make real money."

"You think I can do that?"

Helio clapped him on the shoulder. "You got the talent. Why not? Just don't use any didged images that someone can sue you for." And then he winked at Gloria, and went out the door.

Paulie looked at Gloria. "You think I should do this?"

"I can't think why you shouldn't."

She helped him clean up the trash. When they were done, she turned to Paulie and said, "Do you mind if I stay here tonight? It's a long drive home, and I don't have any dates tomorrow till afternoon."

"Only if you go off the clock," Paulie said.

"You bet," she said, and began to take off her clothes. Paulie saw that she was giving him the look she gave when she was working, and for a moment he was confused.

"Is this one, like, for free?" he asked.

"I only do this for poets," Gloria said.

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After Paulie came floating back to consciousness, he found Gloria in the bathroom. She wore a little kimono she'd taken from her big shoulder bag. She'd taken off the blonde wig, and was brushing her hair.

"Paulie," she said, "do you mind if I sleep in the spare room tonight?"

Paulie looked at her in surprise. "I got bad breath or something?" he asked.

"No, it's just that I like to sleep alone. *Sex* with guys is okay, but when it comes to sleep, I'd rather be by myself. If you don't mind, that is."

"Whatever," Paulie said. He felt kind of disappointed.

"But I'll sleep with you if you want," Gloria said. "I don't want to break any of these rules you got."

"Rules?" Paulie asked. "Like what, rules?"

"Like *Everybody can be replaced.*"

"Okay." Paulie conceded that one.

"Like if another outfit pushes, you push back. Like dead people should look like dead people, and you have to remember that people got ribs, and that gangsters are in the hurting business."

"Those aren't *rules,*" Paulie insisted. "They're the *way things are.*"

"Whatever. But if the way things are is that girlfriends have to sleep with guys even when they're not having sex, then I'll do it."

"I don't think there's anything hard and fast about that," Paulie said.

But he was still disappointed when she went into the spare room.

Later, Paulie was glad that Gloria wasn't next to him in bed, because he had a hard time falling asleep. He lay awake for hours and thought about his next project. He realized that all his thinking was on the wrong scale. Instead of just fixing pieces of other people's movies, he could make his own from scratch. He could use practically any actor—well, practically any *dead* actor—and tell any story.

The sense of freedom was breathtaking.

He decided to make a movie about how things *were.*

When Gloria woke, Paulie was already at the DEC. She made some coffee and went into the study to hand him a cup.

"Working on the new thing already?" she asked.

"I'm just sorta throwing ideas together."

She sat on the seat next to him. "What do you have so far?"

"A story about a guy who has to start over. He gets into trouble with this one outfit, see, and then he has to move to a new area and work with a new outfit. And he has to prove himself to this second outfit before they'll accept him."

"How does he prove himself?" Gloria asked.

"Oh." Paulie shrugged. "He solves their problems for them."

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Gloria left around midmorning to get ready for a date, and Paulie worked on till noon, when he remembered he had an appointment to meet Márcio and burn down someone's donut shop. As they were splashing the cooking grease around prior to lighting it off, Márcio told him again how much he liked *How Gangsters Got Invented,* and Paulie said he was already working on something new. Márcio laughed and asked for two tickets to the premiere.

Afterward, reeking of cinders, they had a few drinks in one of Helio's bars, then Paulie returned to the mediatron. Burning down the donut shop had given him some ideas.

Someone's problem, he thought, could get solved in a donut shop. He liked the combination food/hot grease/fire. He liked the contrast of the mundane setting, rotating stools and Formica countertops, with the potential for unique and extraordinary violence.

It was much more original than having someone get killed in an Italian restaurant. Half the gangster movies ever made featured somebody face-down in the marinara. He'd even used it himself in *How Gangsters Got Invented.*

No one who saw his new movie, he thought with satisfaction, was going to forget the donut shop scene.

Weekends were Gloria's busy time, so Paulie didn't see her till Monday. By then Paulie had roughed out the movie, even dictated little bits of dialogue. Gloria came in and looked over Paulie's shoulder at the mediatron.

"How's it going, sugar?"

"Fine."

"Anything I can see yet?"

"No. Just little bits and pieces. I'm trying to get the story first."

Gloria looked at Paulie's share from the donut shop arson, bills with rubber bands around them just tossed up on the mediatron console until Paulie decided what to do with them.

"Know what you're going to do with your profits yet?" she said.

"Haven't thought about it," Paulie said.

Gloria slid onto Paulie's lap, and put an arm around his neck. "Here's what I'd do," Gloria said. "I'd release *How Gangsters Got Invented* on one of the pirate copyright boards on the net, out in Sinjiang or the Dutch Antilles or someplace, and then I'd launder my profits back through there."

"Huh," Paulie said. The idea seemed perfectly plausible.

"The thing is," Gloria said, "your line of work is profitable but highly speculative, so your investments should be conservative. A nice Fidelity mutual fund or something. You see what I'm saying?"

Paulie nodded. "Yeah, I see."

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Gloria smiled. She kissed his cheek. "Would you like to go to bed? We can talk about investments later."

"Sure," Paulie said. He saved his work, then walked to the bedroom with his arm around Gloria.

"One thing before we start," he said. "Are you my girlfriend?"

She looked at him. "I am if you want me to be."

"Okay," Paulie said. "You're my girlfriend, then."

She leaned close so that their foreheads touched, fiddled restlessly with the lapels of his shirt. "You don't mind that I'm a hooker?"

"Not if you don't mind what I do."

"You don't want me to quit?"

Paulie thought about it.

"See," Gloria said into the silence, "I don't want to break any of those rules you got."

Paulie couldn't think of a rule that applied in this situation. "Do what you want," he said. "Whatever makes you happy."

"Well," Gloria said, "it doesn't exactly make me *happy*, I mean it's *work*, but I'd like to build my portfolio some more before I retire."

"Fine," Paulie said.

She nestled up against him. "I'm glad we got that settled."

As he kissed her, Paulie couldn't help but think this was just like a scene out of a movie.

He couldn't work on the new project all the time. He had to do his work for Helio, and every so often fly out of town on an outside contract, and now, thanks to Gloria, he had investments to keep track of.

He spent money on Gloria, because that's what you were supposed to do with girlfriends. He took her to boutiques and bought her a lot of clothing and jewelry that she could wear in front of Helio and his crew. Sometimes he even spent his own money instead of using hot Kash Kards. They went on trips together, like to Grand Cayman, where they both had money they were keeping away from the IRS. Paulie stole Gloria a Porsche convertible, and had its color changed from silver to red in a chopshop that Helio had an interest in, then gave it to her with a big blue bow around it.

He put *How Gangsters Got Invented* on several boards for downloads, and it even got some good reviews in online publications like *Pirate Media*, which meant that people paid to download it and he got some of the money to buy some more mutual funds.

But he spent almost all his free time at the DEC. Images continually floated through his mind, a continuous blur of faces, angles, movement. Sometimes a new approach, or a new image, would flashthrough his thoughts in his sleep, or while he was talking to Helio or Gloria, and then he couldn't wait to get back to the mediatron and see it blossom before his eyes in its full digital majesty.

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Once, in Toronto, Paulie almost messed up a job because he kept looking at it as a movie director would, wondering how he would shoot the picture, what angles to use, what lighting. He had to stab the guy twice, because his mind wasn't on the first thrust. He hadn't had to stab someone twice in *years*.

People got ribs, he admonished himself.

It took him eleven months, but finally he had his movie finished. He decided to call it *Nick Starts Over,* because Nick was the name of the main character and starting over was what he did. He did the titles himself, but he knew he didn't know enough about music to score the thing, and so did a little job in New Orleans so that he could afford to pay a specialist to add the music to the movie. He never met the man, who lived in Kinshasa, only communicated with him on the net—he, like Norman, didged movies for a commission.

Finally he called Helio and his crew and invited them over for a Friday Girlfriend Night.

"So we thought about alligator and rattlesnake," Raimundo said, "but we thought the Gila monster pattern, with all the red and black beading, would go best with Sondra's new Vásquez catsuit."

"Nice boots," said Paulie.

"You like the red earrings?" Raimundo said. "They're designed by Croissant. They match the red of the boots exactly."

"Nice," said Paulie. "Can I get you a drink?"

"Got any of that coke you had last time?" Sondra said.

"You bet. Silver bowl. Bathroom."

Sondra rocketed off toward the toot, with Raimundo trailing behind.

After they were out of earshot, Gloria murmured in Paulie's ear, "Don't you think Raimundo's a little old to be playing with Barbies?"

Paulie had to turn his head away to keep Raimundo from seeing him laugh.

The mediatron and its multiple screens had been wheeled out into the parlor, where Paulie had also set up comfortable chairs and a buffet. After thanking everyone for coming, Paulie told the mediatron to play *Nick Starts Over*.

The movie started off fast, with the donut shop scene close to the beginning. The scene was played to loud shouts of approval from Helio and his crew, though a couple of the girlfriends turned their heads away at the sight of death by hot grease. There followed the scene where Young Mike tried to assassinate Nick, and Nick turned the tables on the killers and made his escape from Philadelphia to the City of Angels, a scene that was greeted with cheers.

"Great stuff, Paulie!" said Leo.

"You got a winner here!" Márcio said.

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"Your dead people sure look *dead,*" Sondra complained.

As the movie went on, Paulie began to sense a loss of enthusiasm on the part of his audience. He saw Helio leaning forward, looking thoughtfully at the screen while fingering his chin. Occasionally he would exchange a glance with his brother Raimundo. Leo and Márcio continued to respond enthusiastically, but they sensed the more somber mood of the older men and their response grew more muted as the film approached its conclusion.

Paulie felt anxiety gnaw at him. The big climax was building, the scene where Nick fixed everyone's problems, and nobody seemed to be enjoying it.

"This is the *best part,*" he said hopefully, but no one responded.

Nick shot, stabbed, and blasted his way to stardom, but to a baffling lack of reaction from his audience. Feeling a knot in his belly, Paulie turned on the lights. The somber faces of the other men looked at him from their seats.

"Paulie?" Helio said. "Can we talk to you in the other room for a minute?"

"Sure," Paulie said. He looked at Gloria. "Can you entertain the ladies till I get back?"

He took Helio and the others into the office. There was a big hole in the room arrangement where the mediatron had been. "What's the problem?" he said. "You didn't like the movie?"

"It was a good movie." Helio gave a slow, sage nod. "It was a *really good movie.*"

"You got the talent, all right," Raimundo said.

"Maybe too much talent," Helio said. "Because, Paulie, you got to change this movie."

"Change the movie?" Paulie looked from one grave face to the next. "What do you mean, change the movie?"

"It'll bring heat on us," Helio said. "Everything you had in there, it all happened."

"No, it didn't," Paulie protested. "I made it all up."

"It's *you,*" Helio said. "Nick is *you.*"

"No, he's not!" Paulie insisted. "I got the face out of freeware!"

Helio spoke patiently. "Changing Big Joe's name to Big Mike, changing Little Joe to Young Mike, moving things from Providence to Philadelphia, that doesn't alter the fact that it's about the Big Joe situation."

Márcio spoke up, a big grin on his face. "Did you really kill Big Joe in a donut shop, Paulie?"

"No!" Paulie shouted. "Big Joe died in back of his garage! I made the whole donut scene up!"

"You see the problem," Helio said. "Anyone who knows anything about us, he's going to know right away who all the characters are, and what

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really happened to some people. Maybe, like Márcio, he'll think Big Joe died in a donut shop instead of a garage, but he'll still know that Big Joe died, and now if he sees the movie he'll know who did it. And that's going to bring us too much attention."

"It's a *movie!* Who's gonna know?"

"The cops, the feds," Helio said, "they don't go to movies?"

"And the Vitalio situation," Raimundo added, "it's all there, it's in the movie."

"It's not!" Paulie said. "The guys Nick works for, I made them Latins."

"We're Brazilians," Helio said. "Brazilians *are* Latin."

Paulie was taken aback. "You are?" he said.

"Sure. What did you think?"

"You're not *Spanish* Latin," Paulie said.

"It's still too close," said Helio.

"But it's not! The cause of your problem with Vitalio, that had to do with the bet on that horse race that he fucked with. But with the guy in the movie, I made it a situation in a card game in Vegas."

He was particularly proud of the digitized Caesar's Palace that he'd found on the net.

Raimundo was red in the face. "What does that matter? Nobody cares how the Vitalio thing got started! But you got everything else! You've got every situation, every problem, every solution!"

Helio put a soothing hand on Paulie's arm. "We're only asking you to change a few things, Paulie."

"A few things! Like what?"

"Well," Helio said, "like the plot."

Paulie was outraged. "*The plot?*"

"Those action scenes," Helio said reasonably, "they're the heart of your movie. You don't have to change a thing there. All you got to do is change who the characters are and what they do."

"I spent a year on this thing!" Paulie said. "A year! I'm not gonna change it for some dumbshit reason like this!"

Helio's lips were pressed into a thin line. "It's not dumbshit. Prison is not dumbshit."

"This is *my* movie!" Paulie shouted. "I sweated over every frame of it!" He pointed at Helio. "You are *not* going to fuck with it! You are *not* going to take my movie away from me!"

They glared at each other for a long, furious moment, and then Helio shrugged. "Just think about it, Paulie," he said.

"I don't gotta think about nothing!" Paulie said.

Helio patted Paulie's arm again. "Just think about it for the weekend, Paulie. We'll talk about it next week, when we've had a chance to calm down."

"Yeah," Raimundo said. "Let's join the ladies."

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They began to shuffle toward the door. "Good movie, Paulie," said Leo as they left the office. "Real good movie."

"What was that all about?" Gloria asked, when she had a chance to get Paulie alone. "Jesus, you were *screaming* at each other."

"Fucking critics," Paulie said.

"What's their problem?"

"I'll tell you later."

The party was sort of okay. Helio and his crew seemed relaxed, and they had some fun. After the Brazilians had gone, while Gloria took off her blonde wig and brushed out her hair, Paulie told Gloria what the argument was about. She looked at him in the bathroom mirror and frowned.

"This is a real problem, isn't it?" she said.

Paulie shook his head. "It'll blow over."

"No. Seriously. You broke a rule."

"Gloria," Paulie said, "it's a *movie*. It has nothing to do with *anything*."

"You should get this straightened out with Helio. I want you to call him tomorrow."

"I dunno," Paulie said. "It's really not important."

Gloria put her brush down. "Paulie," she said. "Listen to me. I want you to call Helio and tell him you'll fix it."

"Yeah," he finally conceded. "Okay. I'll do it if you insist."

So next day he called Helio, and he said he was willing to make a few changes. Not the *story*, not anything crucial to the movie or anything, but he was willing to change how the characters *looked*, or whether they were Latin or not, or their names. He was willing to go that far.

Helio listened and seemed to agree.

As Helio hung up the phone, Raimundo said, "We got a problem here, don't we?"

"Yeah," Helio said.

"A *tough* problem."

Helio sighed. "Tough," he said, "yeah."

"Who's going to solve it for us?" Raimundo asked.

Helio wrinkled up his face. "I don't know," he said. "I gotta think."

When he got home he called Little Joe in Providence, and then contacted the guy in Boston that Little Joe recommended.

Nice fuchsia, Al thought as he looked at Paulie's former home. He had dropped the body in a place on Saddle Peak that Helio had told him about, and now he returned to the scene to deal with the mediatron. Because he didn't know much about electronics, and wasn't sure he could erase its contents properly, he'd brought a crowbar with him just to make sure.

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He unplugged the mediatron, unscrewed the console panels, and smashed everything inside. Then he rolled the wrecked machine out into the driveway so that he could push it up into the truck he'd rented for the purpose of carrying it to a scrapyard Helio had told him about, where it would be crushed into a small metal-and-plastic cube.

He lowered the truck's ramp to the pavement, and maneuvered the mediatron toward it. It was at that moment that a Porsche purred up into the driveway and a woman got out. Al walked toward her.

Al was supposed to clip Paulie's girlfriend, too, but all he knew about her was that her name was Gloria and she was a blonde. Nobody in Helio's crew knew Gloria's last name, or where she worked, or where she lived, and Al hadn't been able to find her phone number written down anywhere. So Helio had just told him to hang around until Gloria showed up, and then do the second half of his job.

The woman in the Porsche was a redhead. That made Al hesitate. She was also dressed like a businesswoman, in a suit, and not like a person that someone like Paulie was likely to have for a girlfriend.

"Can I help you?" he asked.

The woman seemed puzzled. "Is Paulie in?" she asked.

"He's gone out for a little while," Al said. "Are you Gloria?"

The woman was looking at the smashed mediatron. She looked rapidly at Al, then back at the mediatron again.

"No," she said. "I'm not. My name is, ah, Miss Gross." She licked her lips. "Paulie said he wanted to talk about, ah, insurance. For his electronics."

"I wouldn't know anything about that," Al said.

"Well." The woman turned and walked quickly back to her car. "Tell him I came by, okay?"

"I'll do that," Al said.

The woman drove away fast as if she had another appointment.

Al pushed the mediatron up into the truck, then strolled back into the house. It was nice, he thought, full of light. And he liked the smell of honeysuckle wafting into the house from the deck out back.

Wonder who owns it? he thought. Since he was waiting for Gloria anyway, maybe he should start making himself at home.

Other than the insurance lady, nobody ever came by looking for Paulie.

That's how popular Paulie was. ●

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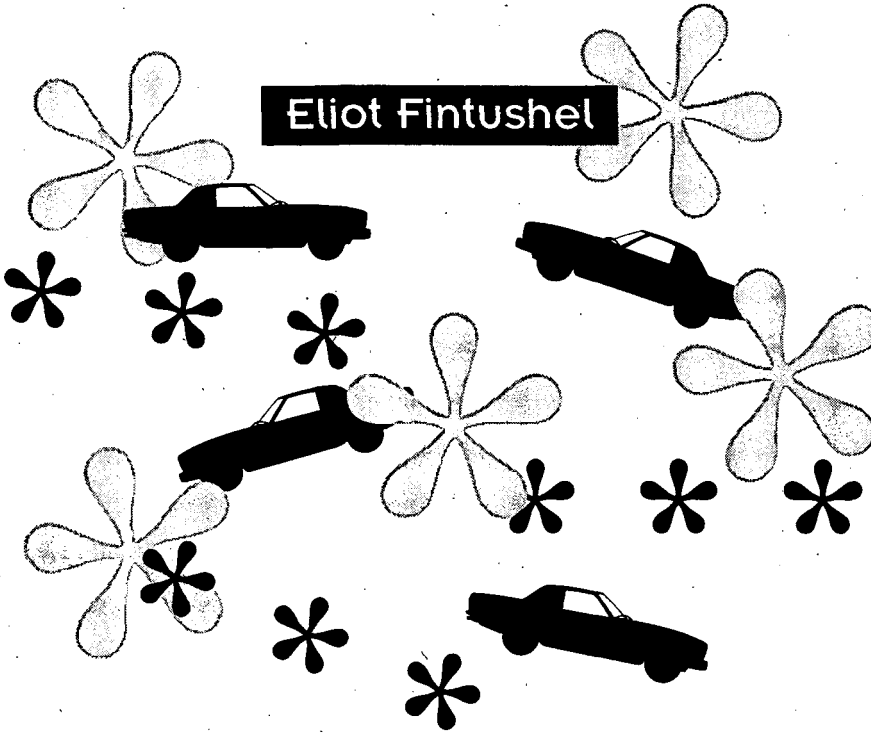

IZZY AND THE HYPOCRITE LECTEUR

Eliot Fintushel lives alone in a working-class neighborhood north of San Francisco, "where my little daughter likes to visit and write and drum and paint goddesses between the rafters of the back porch." Besides writing novels and short stories Mr. Fintushel is a performer and teacher of mask theater and mime.

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Izzy and Fay were a match made in heaven. Fay was Izzy's fresh-baked-this-morning cheese Danish and a hot cup of joe. And Fay's Izzy, every time the matzoh balls of Fay's little life sank to the bottom of her *soucoup,* old Iz knew just how to leaven them—"*Kootchie-koo,* Feigeleh!"—till they effervesced. They were up to their silk anniversary, common law of course, but they had never met each other—a lapse that Izzy, having spent twelve years of months of weeks of days bumping to the bottom of his priorities list, at long last decided to rectify.

So he gave Sarvaduhka a tinkle, his motel mogul chum in Buffalo, and talked him into a little bachelors' vacation.

"Two weeks, Izzy? Am I Conrad Hilton? You think I can afford to have my cousin run the *Lucky 3* for fourteen days during the tourist season?"

"Don't argue, Savvy baby. You end up coming along with me regardless. This is all settled business, except for you jawjacking. Read Parmenides."

Sarvaduhka had read Parmenides. Also Ashvaghosa and Nagarjuna, late into the night, to avoid self-abuse. "Being is," he said, "I know. Ohkay, two weeks, on speculation I may get some female action. But we *include* in these two weeks date of departure and date of arrival. Fourteen days complete package. And if this has anything to do with your psychic *pup'hula,* Izzy, as God is my witness, I'll make your face look like a papadoum."

"Seven times two, Ducky. Done deal. Your car or mine?"

His. Sarvaduhka had a VW squareback with rust so serious that at slow speeds you could stop it by dragging your foot on the pavement through the hole next to the clutch pedal (operated by a rope). Sarvaduhka *loved* his squareback. It was fuel efficient. It was venerable. He burned Agarbatti jasmine incense in the ashtray. On the dashboard he had a blue soapstone elephant with a dozen arms and a plush-bottomed shakti in its lap, resplendent with rhinestones and filigree. The shakti scissored the elephant's pelvis with splendid, long legs as she fondled his tusks. She had arm bands. She had breasts.

Plus, Sarvaduhka wanted the home turf advantage. He didn't like the way Izzy drove. Izzy picked up hitchhikers—on principle! The mad telepath picked up everything with a thumb and took them exactly where they wanted to go. Ducky gnashed his teeth. Izzy had them riding the undercarriage and dangling from the roof rack, serial murderers and hebephrenics. Once, outside Myrtle Beach, North Carolina, Izzy'd picked up a whole family of armadillo-eating hillbillies, five of them, aged one-and-a-half to seventy-eight, en route to Florida to lug melons for the big bucks, they'd heard.

Sarvaduhka didn't like that. "This is a motel on wheels," he'd complained. "If I had wanted like this, I would have stayed at the *3.* At least there, I have my dirty videos." That had been their *last* little bachelors' vacation.

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So he picked Izzy up in his Amor Vincit Omnia squareback with the Playboy bunny deodorizer and the soapstone Ganesha.

"You're going to meet me driving *this* thing?" Fay said, handing Izzy a thermos of coffee through the shotgun window as Sarvaduhka flooded the engine.

Izzy wadded a jacket behind his bad back. "If I don't, our whole sweet life together is a fiction, Feigeleh. Is there cream in this?"

Sarvaduhka let the engine rest. "Meet?? Fiction?? I don't want to know what you're talking about."

"Izzovision," Fay couldn't help explaining.

"Izzovision!" Sarvaduhka spat. "This is Izzy's way of gilding his disease into a talent. Psychic abilities! Izzy, I see the future also. I see your face turning into a papadoum."

Izzy yawned. "I knew you were gonna say that, Duke," he said. Fay laughed. "But we're talking about the past here, not the future."

"Being is," growled Sarvaduhka, and he floored it.

"Be careful, Izzy!" Fay called after him.

"I was," he said.

* * *

They were in Erie. They were in Cleveland. They were in Toledo, just like that. Sarvaduhka started to feel expansive. "Is Fay a hot number, Izzy?"

"Sizzling. Almost more than my sacrum can take."

"I am of the belief that the females find me attractive, Izzy. I have attractive mustaches and thick hair, not just on my head, Izzy, but all over my tight little body. I will never be bald, as you are."

"Sarv, that patch of skin is my antenna."

Angola. Mongo. Lagrange, Indiana. "I thought it was that single eyebrow of yours, but I don't want to talk about psychic baloney. I am talking about female action."

"Ah, female action!"

"That is what my bachelors' vacation is about. We have nearly completed one day, Izzy."

"And no sign of action. Watch the road!"

Sarvaduhka leaned on the horn and shouted something in Hindi. From the left, a bright red Porsche had swerved in front of him en route to the exit ramp. Sarvaduhka slammed the brake pedal. The three-quarter-ton pickup just behind him did the same. The truck behind *that* one maneuvered to the left just in front of a couple of motorcycles, and they all blasted Sarvaduhka, who thought it was for the Porsche. "The red ones!" Sarvaduhka snarled. "Always the red ones! And did you see his face? No respect whatsoever."

Izzy was grateful to be alive. "It was an elderly woman, Sarvaduhka, a volunteer hospice worker from Duluth, if you want to know. And you were crawling halfway in the exit-only lane."

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"Pull in your aerial, Izzy."

"You pull in yours. You don't know nothing about who's in the other cars or what they're thinking. Your *projections* are gonna get us killed. Pull over and give me the wheel. If I die here, I won't ever have met my Fay"—who was now, by Izzovision, in Izzy's unique understanding of "now," strolling the salt flats near the Bonneville Speedway, deciding to desert the rat who took her there, the one before Iz.

"I'm not tired, for your information, and it was a teenaged boy. With a safety pin in his cheek. His left cheek."

South Bend. La Porte. Gary. Izzy shrugged and readjusted the wadding under his lumbar. He pulled his shoes off. He snoozed.

* * *

Here's what Fay had done.

(In deference to Izzy's meschugge clock, to hedge the issue of chronological sequence, we'll downshift here from pluperfect into the historical present, a non-committal tense . . .)

Fay is going into an East Tonawanda laundromat to use the change machine for her parking meter. In the laundromat, Fay meets a laid-off tour guide from Niagara Falls, down the road. He is carrying a double washer load of underwear to the industrial-size dryer. They collide. Her mother recently deceased, Fay is anxious to leave Tonawanda, where she has resided continuously since high school. He is on his way to Wendover, Utah, where he is convinced there are golden opportunities in the tourist trade. He manages to communicate this to Fay while she helps him pick up the scattered drawers. They make change together. A relationship ensues. She sells her car. They take off in his.

Things like that happen.

All this time, Izzy is eighty miles away in Rochester, losing two fingertips to a lathe machine at Paragon Revolute. But he is aware of everything. His bald spot itches. His palisade of an eyebrow wrinkles and dips. He knows what's going on. He knows there is a Fay in store for him when this loser shows his cards.

* * *

Sarvaduhka was no fool. Izzy couldn't tell *him* how to drive, nosirree. Zoom, boy, he'd bombed down the *autobahn* when he was twenty-two. He'd weaved through cabbies in Calcutta and Bombay and skidded along the Nepalese border on two wheels before following the venerable wing of his family into the North American hospitality racket. He knew what was on other drivers' minds, boy: Dog eat dog.

Show no sign of weakness. The car following him from Minooka to Morris had a grill like a piranha. It was red. Sarvaduhka passed a mile marker and counted the seconds until the red piranha passed the same spot: one Mississippi, two Mississippi, three Mis . . . two-and-a-half seconds. "I knew it! Too close! *Pup'hula!*" he intoned, one of the three or

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four Sanskrit words by virtue of which he considered himself a savant—*Fart!*

Izzy snored. Sarvaduhka jammed the accelerator to the floor. The piranha dwindled in the rear view—Sarvaduhka chuckled and rubbed his shakti's posterior—then roared up to kiss-butt distance again. "Damn!"

Drooling slightly, Izzy plumped his wadded jacket and settled into fetal position. Sarvaduhka squinted into the rear view. A woman driver, definitely. He craned his neck out the side to check her out in the West Coast mirror. Her windshield was tinted. *Clever. Bet she hustles poker, too.* He speeded up a little, then jabbed the brake pedal. SCREE! The piranha momentarily slowed, then came up even closer. "*Mahapup'hula!*" *Very big fart!*

Izzy stirred. "Rowley Junction," he muttered. "She dumps him in Rowley Junction. The bum's making her pay the tab on all his coffees." He rubbed the sand out of his eyes. "Ducky, we gotta be in Utah by Wednesday. What kind of time we making. . . ?" Then he heard the roar of the piranha, grill to their tailpipe, and he caught the mad glint in Sarvaduhka's eye. "What the hell's going on?"

"Tailgating devil," Sarvaduhka explained, eyes glued to the rear view. Sarvaduhka had another trick. He weaved all over the lane, whipping their bags from side to side across the back seat. "Give me some *lebensraum,* bitch woman!"

Izzy grabbed his seat. "That's no bitch woman! Get hold of yourself, Ducky, before you kill us!"

"That's it,"—nose to the windshield, nostrils flared like muffler pipes, knuckles white against the wheel—"she wants to kill us. That's what she does, this she-devil, rich businesswoman with judges and senators in her pocket, never has to pay, but she doesn't know Sarvaduhka, Izzy. No, she does not!"

"Sarvaduhka, for crissakes, you're *projecting,* you maniac, and . . . wait a minute . . . and *she's* taking it!" He gasped. He leaned head and shoulders out the passenger window, and looked back at the red piranha.

"What do you mean, *taking it?*" Sarvaduhka said, while Izzy, holding for dear life onto the window frame, performed an experiment.

First Izzy relaxed his belly the way he did to hear spacemen and transdimensionals and future and past conversations in remote venues. All the mind gossip spiraled down there into his solar plexus, like dishwater down the drain, leaving Izzy's noggin passably clear. The wind whipped the back of his head. Seventy, eighty, ninety em pee aitch. He smelled cut grass and diesel fuel. He heard blackbirds rasp. He looked back where the red piranha should be with the she-devil behind her tinted windshield, and saw . . . nothing. "Shit!"

"What?"

"Let her pass."

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"She doesn't want to, Izzy. What do you mean, *taking it?*"

"Let her pass, dammit, or him, or it, or whatever the hell you're making that thing at present."

"*Making?*" Impressed by Izzy's sudden, uncharacteristic sobriety, Sarvaduhka gradually let up on the gas.

"There's nothing there, Doc. It's what I was afraid of. We're being tailed by a womporf."

"*A womporf?*" Sarvaduhka's piranha dropped back a half-second's worth.

"This kind of shit happens sometimes when I retro-memory."

"*Retro-memory?*"

"Sarvaduhka, it's time I filled you in on a few things."

"She still isn't passing, Izzy."

* * *

FLEXTIME

Everything stopped. "Stopped, *so to speak,*" said Izzy. "Stopped, that is, old Duck, not the usual way, via cessation of motion, but by *epoché.*"

"Epoché?"

"Read Sextus Empiricus. Read Husserl."

"I did. Izzy, I can't breathe!" Sarvaduhka started leaning for air like a beached mackerel. Then he noticed that his blood wasn't moving. He felt bloated. His eyes swelled to the size of a Balinese mask's. The piranha hadn't moved. His engine wasn't humming. A fly about to be immolated against the windshield hung motionless above the hood, as if preserved in clear amber.

"You don't *need* to breathe, Ducky," Izzy said, "on account of we are between breaths here. We are between heartbeats. We are between vibrations of sound. Notice how quiet? We are between everything. My back feels great, for a change, by the way, but we can't do this for long.

"I just did a little epoché. I put parentheses around your she-devil, plus your Ganesha and your tight little bod and all of Interstate 80. This entire moment we're sharing, Sarvaduhka, and everything in it and around it is now epochéed."

"You are a remarkable individual, Izzy Molson," Sarvaduhka said, terrified.

"I just subtract the is-ness out of it, see what I mean? Everything's the same, but it doesn't *exist* any more."

"Quite so! Quite so!" He had no idea what Izzy was talking about.

"We're *between*. So we got a little time here. To work things out, I mean."

"I feel like I am dreaming!"

Izzy grabbed the jacket out from behind him, unwrinkled it, and

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pushed his hands into the sleeves and pockets. "I thought I had a piece of a Danish in here. Never mind." He laid a hand on Sarvaduhka's shoulder. "I love Fay," he said. "She's the best thing that ever happened to me, Sarvaduhka. I saw her coming on Izzovision, and I did something I oughtn't to have. I flextimed."

"Flextimed?" Sarvaduhka tried to smile. Maybe Izzy would try to hurt him. People who talked like this sometimes did unpredictable things, especially when you weren't breathing or circulating your blood. He suddenly realized that his hands had left the steering wheel; he clamped them back on, in spite of the fact that the car didn't seem to be moving.

"Flextimed. Like, I took a two o'clock and stuck it between four and five pee em, see what I mean? Watch this."

Sarvaduhka breathed. His pulse resumed. The engine hummed. The car started moving again. The red piranha, he noticed, was gone.

"Correction. Not there yet," Izzy said.

What was Izzy correcting? Never mind that. Quite suddenly, Elk Mountain loomed up ahead on the left, and they were crossing the Little Laramie River, just as if someone had tucked in the states of Iowa and Nebraska and stitched Wyoming onto Illinois. Also, in the back seat, *ex nihilo,* a curly headed teenager in a blue windbreaker was gathering up his sleeping roll, a canteen, and a khaki rucksack, army issue. He leaned his head forward between Izzy and Sarvaduhka. Sarvaduhka smelled garlic on his breath.

"Hey, Iz," the boy said, "is this guy Sarvaduhka?"

"Yeah, that's him."

"Well, watch out for womporfs in Illinois then, about 1988. He brings 'em on, Iz."

"I know, but it's my fault."

"Say, would you mind picking me up about fifty miles back, in Cheyenne?"

Sarvaduhka didn't dare look at Izzy or the kid. He saw curls and pimples in the rear view, but he tried not to focus. Mountains. Sheep. That was enough to chew on.

"Sure thing," said Izzy. "We picked you up in Cheyenne, then. Duco, pull over and let the kid out."

Sarvaduhka couldn't take it any longer. "Let him *out,* Izzy!? He never got *in!*" But he pulled over. The boy got out. And as soon as he slammed the door, Sarvaduhka remembered.

He remembered the boy standing under the billboard near the Air Force base outside Cheyenne. "Give the kid a break," Izzy had said. *Now* he had said it. A minute ago he hadn't. Someone had slipped a memory into Sarvaduhka's grey matter, like a shim in a casement. Slow and dumb as a puff pastry on a rotary display, Sarvaduhka turned to Izzy.

"See what I mean?" Izzy said. He pulled the piece of Danish out of his

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jacket pocket—it was there now—and started munching. "Retro-memory."

"How did we get to Wyoming?"

"Hey, travel is a big joke anyway, Duhka. Nobody goes anywhere. Read Parmenides."

"Being is."

"Now you got it!"

* * *

"Izzy, can you get me some female action this way?"

"I wouldn't advise it."

Izzy munched. He unscrewed the cup from his thermos, a grey, stainless-steel Aladdin he would receive as a gift from Fay in about three years' time, if everything had worked out the way he was planning. He poured himself some coffee. "Ahh!" Fay wasn't going to forget the cream. "Want some?"

"No. What is going on? Is this still epoché?"

"Yeah. We got till the next asterisks. Then the red piranha shows up again, and I die."

"Asterisks? Die?"

"Listen, Sarvaduhka. I knew there was a Fay in my life. Izzovision. She's my Sun and my Moon, Duck. I just couldn't wait and do things the usual way, see? I already knew the punch line. So I skipped the formalities. I flextimed. Shazam! There we were, happily sharing living quarters without the trouble of introductions. All of a sudden, as they say in the normal world, we had loved each other for years. But there is a price."

"Womporfs?"

"You amaze me. Yeah, womporfs. You get them from screwing around chronologies. They don't exactly exist, Sarvaduhka, if you catch my drift, but they *take on* whatever you think of them. If I'm going to have met Fay, we gotta take care of that womporf."

"This womporf is a she-devil because of *me*?" Sarvaduhka asked.

"All you saw was a red car behind you, right?" said Izzy.

"Ah! And the windshield: tinted!"

"Exactly."

"How do we dissolve it, Izzy?"

Izzy shook the cup out the window so that any remaining drops of coffee would not accumulate at the rim and drip down the next time he unscrewed it, which could have been a long time ago. They were still idling beside the road near Medicine Bow National Forest. The boy was disappearing into the woods, not looking back.

"Orthographic propulsion, Doc."

Sarvaduhka took a deep breath. He paused to consider whether his nervous system could survive yet another channel of Izzovision. But maybe there was some female action in it. "What is orthographic propulsion?"

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"You find out in the next section. Look out. Here come the asterisks."

* * *

THE NEXT SECTION

Splat! The fly was a smudge on the glass. The red piranha bore down on the squareback. Sarvaduhka felt the impact before he saw it, when the piranha rammed him from behind. "It's *not* a piranha. It's *not* a piranha."—the Sarvaduhkamantra. "Am I right, Izzy? It's whatever I say?"

"Too late!" Izzy groaned, massaging his lower back. "You've already made that womporf my death!"

Sarvaduhka screeched into the left lane. The piranha screamed at his tail. He tried fading right and downshifting to force the she-devil to pass him. The clutch rope tangled on the stick, and as Sarvaduhka reached down to uncoil it so he could pull the pedal back up, he noticed three thin, parallel lines of blood trickling down his right arm. "Izzy, I'm hit!"

"Oh, great. Now you've got her packing heat. . . . Wait a minute." Izzy braced himself against the dashboard as their gear ratios yo-yoed and the piranha left its racing stripe in Sarvaduhka's door handle. Izzy leaned over to examine Sarvaduhka's wound. "Hot damn," he announced. "You ain't been shot. These are asterisk scrapes from the points of those stars when we spilled across the scene break."

"Scene break??"

"Yeah. Everything is aces, Doc. We're already halfway into orthographic space!"

"Orthographic. . . ? Yaaaaaaa!" Sarvaduhka's forehead jerked forward and hit the steering wheel. The metal over his door exploded inward in little circles, pricking up the upholstery like crowns around the bullet holes. Simultaneously, the glass in front of Izzy perforated and cracked into a network of spiderwebs.

"Sari baby," Izzy shouted, "please don't think about heavy artillery. I need to have an exhumable corpse for this thing to work out."

Now the piranha pulled alongside, hubcap to hubcap. Sarvaduhka reared up in the driver's seat and crushed the accelerator pedal to the floor. He tried to concentrate. He tried not to project. As in the ancient mantra, taught him by a Tibetan refugee in Kathmandu:

Mi no. Mi sahm. Mi chad ching.
Mi gom. Mi sehm. Rahng bahb zhahg.

"Think not. Reflect not. Analyze not.
"Imagine not. Meditate not. Retain the natural state."

Don't think about the she-devil. Eat up the road. Become one with the

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car. Don't think about anything. Especially not movies. *Ben Hur* in particular. Don't think about *Ben Hur*. Don't think about that chariot scene, for Ganesha's sake, where the bad guy comes up alongside Charlton Heston—just like this piranha nuzzling the squareback—with those blades on the hubs of the bad guy's chariot wheels. Don't think about that. Don't think about how they shear off Ben Hur's wheels, and . . .

"Yaaaaa!"

The steering wheel yanked Sarvaduhka to the left as the front left wheel collapsed and the squareback scraped and clanked into the path of the red piranha. Sarvaduhka, terrified, *no*-ing and *sahm*-ing and *chad ching*-ing and *gom*-ing and *sehm*-ing from the black hole of Calcutta to the Kunlun Shan, saw, *or thought he saw,* the toothy grill of the red piranha yawn open, revealing a bloody uvula. Steel incisors, triangular, dripping aqua regia and kelp, masticated the squareback's chassis.

"I'm a-comin', Feigeleh!" Izzy bellowed.

The squareback tumbled into a field of bearded wheat, broken and mangled. The piranha roared off. The she-devil fired her Smith and Wesson into the air, while she laughed with her high-rolling politico pals on the cellular phone. Her hub blades retracted. The grill snapped shut. She disappeared into that flat Midwestern infinitude where the road pinches out and parallel shoulders meet.

Sarvaduhka coughed and fell out the door into a pool of fish emulsion. "Izzy! Izzy!" He groped his way through smoke, past twisted metal, to the other side of the car, where Izzy lay staring at blue heaven, his bald head haloed by sheaves of wheat that caught the long rays of twilight. "Izzy, please don't die."

The stink of the fertilizer. Izzy's glazed look. His Ganesha shattered. Sarvaduhka sank to his knees. "I am a very bad driver," Sarvaduhka whimpered.

Suddenly—retro-memory, a slug snuck into the galley of Sarvaduhka's mind! "Duck, listen up," Izzy had told him just before the crash, so Sarvaduhka recalled, though he had not experienced it at the time (and STET on the tenses, proofreader). "In a couple of graphs I gotta die. It's the only way to null out the womporf. From that point on, we gotta travel via orthographic propulsion . . ."

* * *

ORTHOGRAPHIC PROPULSION

" . . . which deserves its very own section," Izzy continued, according to Sarvaduhka's retro-memory. Sarvaduhka blinked. Sarvaduhka considered Izzy's corpse, considered the smoking, steaming hulk of his beloved squareback, considered running to Mummy, considered suttee, then remembered that his mummy was in Bengalore and that he wasn't Izzy's

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widow, and then he noticed the parallel lacerations on his left shoulder and arm dripping blood down onto his wrist—just like the scrapes on his right arm, asterisk welts from the leap between sections—and he figured he'd better shut down the old cogitorium and listen up, as Izzy directed. He directed his attention inward, *and downward,* into the paragraphs following.

"Orthographic propulsion, dear Duck, is how you travel from place to place via the text in which those places are described, see?"

"No." But he was, in spite of himself, beginning to understand. Sarvaduhka's world was collapsing to two dimensions. His body felt like forty-weight bond stained with tendrils of black ink, pinched by greasy fingers, skewered by eyes sliding left to right, RETURN, and left to right again. Every couple of seconds, or longer in the case of slow readers, he felt a page number bullet his margins . . .

"We've entered orthographic space, pal. It's the only way I could settle that womporf and jimmy the past so me and Fay will have met without having been about to be having created (STET) some new womporfs, if you catch my drift."

"I don't." . . . What if the turning pages should crush Sarvaduhka like a fruit fly, pulverizing bones, reducing him to a pinkish stain, an interlinear blotch, forever without female action, somewhere in Illinois or Wyoming, his spermatozoa useless, flat as planeria in some right hand margin, and unjustified no doubt. What if he were apostrophized or hyphenated at some vital organ or word wrapped beyond the tolerance of his vertebral column?

"See, this way, we can ride on the reader's attention . . ."

"*The reader??*"

" . . . right into Wendover or Rowley Junction, where Fay dumps that Niagara Falls guy, so I can pick her up on the rebound, like I'm supposed to."

"Izzy, I need maybe some xanax, some thorazine. Do you have something like this?"

"I can give you an ellipsis."

"Never mind."

"So, like I was saying," Izzy went on, "we just travel to the right line of print and Bingo! Fay meets Izzy. Then back to your Ganeshamobile before the womporf crash, which by that time will not have happened—no piranha, no dead Izzy—with thirteen days left for female action. Whaddaya say?"

"Tell me what to do. I am a blank sheet, Izzy."

"Not quite. First we need to get in some graphs about Rowley Junction and that. Watch yourself around the asterisks this time, ohkay?"

* * *

The bum's name was Ralph Tout, and it was Fay's maternal instincts

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that made her latch onto him. He was the kind of guy who couldn't get his underwear from the washer to the dryer. "Let me help you," she'd said. That was that.

Now they were in Rowley Junction, Utah, just an hour and a quarter from Wendover—rainbow's end. Where Ralph was going to apply his entrepreneurial talent at the Bonneville Speedway, selling popcorn or miniature racing cars or chunks of salt flat or conducting tours, as he'd done at Niagara Falls right up to the time he was laid off. If you knew a few words, those foreign tourists tipped big. *Sayonara. Auf wiedersehn. Ne repousses pas de pied mes petits cochons.*

They were sitting in a café, by the window in back, letting Ralph's radiator cool off. They sipped coffee. They munched Sara Lees. Fay's treat. It was *always* her treat, Fay was thinking. She was nearly broke after paying for all the gasoline, motels, campsites, et cetera, not to mention his dryer in East Tonawanda, which should have tipped her off. She eyed him over the rim of her coffee cup, backlit by the late-afternoon glint off the Great Salt Lake.

He was smiling. "Coffee's not bad," he said.

"Mm hmm." She didn't like herself for hating him, as she'd started to do. Was it selfish of her to notice that he wasn't even that good of a lover? Last night, anyway, she'd passed. He'd stayed up late watching color TV and drinking Thunderbird, while she, behind closed eyes, calculated how much money she had left from the sale of her old Chevy.

"I love this place already," he said. "You done with that?" She didn't respond. He took her cake. "I'm gonna make a lot of money here, I can tell."

Fay tried to see into his soul through the large gap between his front teeth, the one that seemed so sexy at first but reminded her now of chinked mortar. He wiped his mouth with his forearm, flashing once more the faded tattoo: "BORN TO RAISE HELL." He'd seemed nice.

"Stay put, honey," she said, getting up. "I need to go for a little walk. I'll be back before you finish your pound cake."

"Sure thing, sweet stuff," he said. "But don't be too long. Plenty of fish in the sea, ha ha." The diastema. She peered. But she couldn't see the soul. She walked out onto the salt flat. She sighed.

* * *

CONDITIONAL COUNTER-FACTUAL SPACE

"Damn it!" Izzy would have said, had he not been dead.

"What is this?" Sarvaduhka ejaculated. "Orthographic isn't enough for you, Izzy? Are we now in a counter-factual space, a conditional? I hate inflections, Izzy! I hate moods! Sanskrit is lousy with them." Since he didn't know which way to face when he said it—Izzy, after all, was dead—Sarvaduhka addressed his complaint to the broad Illinois sky. It was blue all

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over, but just above the horizon there was a thin stratus with grey streaks descending, distant rain.

"Damn it!" Izzy would have said again. "We missed our chance. The damned scene break fell too quick. We could have snuck in there, right after Fay's sigh."

"We? Was I there, Izzy? In Utah?"

"No, but there's more stability in a plural, for orthographic propulsion, I mean." Izzy would have mulled things over for a moment, while Sarvaduhka's mind split neatly in two. The one half was thinking about grammatical forms in Sanskrit and Hindi; the other was amazed that he could be thinking anything at all with his squareback totaled and his friend totaled and his entire third dimension totaled.

Izzy would then have continued: "Look. This is done, isn't it, to repeat the last phrase of some section at the beginning of a later one? You know, to link them up?"

"Rhetorical transitional space?" Sarvaduhka mewed.

"Something like that," Izzy said.

"God help us, I think so."

"Ohkay then. Get ready, Sarvaduhka."

"How??"

"What the hell have I been talking about? Orthographic propulsion, Doc! Just keep the readers thinking about us. Do something memorable, for crissakes, so we're both still there, riding on their attention when they cross over into Utah again."

Sarvaduhka mounted Izzy's cadaver, his lips on Izzy's cold and bloodless lips, his thighs on Izzy's flaccid thighs. He pushed his tongue into Izzy's mouth and started humping.

* * *

She sighed . . .

("We made it, Duck!" Izzy, alive in Utah, spat Sarvaduhka's tongue out of his mouth. They were squirming in shattered, compacted salt.)

. . . Suddenly, Fay heard the brittle ground heave and crack behind her.

("I do not count this as female action," Sarvaduhka whispered.

"I owe you, you pervert," Izzy said, as Fay turned and started walking toward them. "Lord, you know how to get memorable!")

She hurried toward the source of the sound. It looked like two men fallen through a sheet of salt.

A man with extremely attractive moustaches and thick, fine hair all over his tight little body, such that he would never be bald . . .

("Damn you, Sarvaduhka," said Izzy, "stay away from the narration. Stop trying to sneak your kudos into the text, you ninny."

"I'm sorry," Sarvaduhka said.

"We've got to be very careful outside the parentheses, Duke. This is my

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life with Feigeleh we're operating on, and we can't always rely on italics for cover.")

. . . rose to his feet in front of Fay. He looked around in a panic, then ran off in the direction of the Great Salt Lake.

There was another man in the salt fissure, a bald man in his forties with a single ridge of a brow across his forehead. His hands were grimy, a mechanic's hands, and the left one was missing a few fingertips. He pushed up off the false floor of salt and stood eyeball to eyeball with Fay. His feet a few inches below the salt shelf Fay stood on, he was exactly her height.

"Hey, ain't I seen you in East Tonawanda?" the man said.

Fay thought, *So that's what I'm doing in Utah!* She just stood there, looking at him looking at her with unfathomable intimacy.

"Sure I did," he said, "outside the Wurlitzer plant when I was working there."

"Maybe you did at that," she said. She was beginning to feel that she remembered, not the meeting but the man, and from longer ago than Tonawanda, from far away as the heart alone can measure, so deep in the past that we think of it as future. "Did I offer you a Danish?"

"You could offer me one now."

Fay blushed.

Somebody was banging on the window at the back of the café. "Who's that?" Izzy said. "Somebody you know?"

"Not me," she said. "Who was that other guy with you?"

"Some weirdo. Utah! Let's walk. The name's Izzy. I know a better café down the road. I'm good for coffee."

"I think I'm going to like you, Izzy."

* * *

"O hypocrite lecteur,
"Mon semblable, mon frere!"

—Baudelaire

* * *

Izzy was sitting in the bathroom doorway again, his chin in the traction sling eyebolted to the lintel, while Fay worked the pulleys to straighten his aching back. "Aren't you glad you met me?" she said.

"You're my angel, Fay," he said. "Give it a little slack."

"Sometimes I wonder what happened to Ralph Tout."

"You want me to tune in on Izzovision?"

"Naw."

"Say, how come you never asked me how I got to that place in Rowley Junction? Don't you wonder, Feigeleh?"

"No, Izzy. I know."

"Huh?" But the phone rang. "Help me out of this thing," Izzy said. "That's for me. An old friend."

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"Sure." Delicately she released the tension rope and unlaced Izzy's head, kissing him above the nose, as she always liked to, at the midpoint of his brow. Izzy made for the kitchen. As soon as he was out of sight, Fay rolled up the sleeve of her blouse and washed her right forearm, where the three thin, parallel tracks bled just the tiniest bit.

Izzy picked up the phone. It was Sarvaduhka, collect from Salt Lake City. Izzy looked over his shoulder to make sure Fay wasn't listening. She had gone into the bathroom and closed the door. "Yeah, I'll pay," he told the operator.

"You *mahapup'hula*, Izzy! Some bachelors' vacation! Where's my squareback? Where's my Ganesha? Where's my female action?"

"Take it easy, Duke of Earl. Is it the same year there as I've got here, or are you still back at when I met Fay?"

"All I know is that it's *now*, and my feet are swollen, and I am surrounded by people with multiple wives."

"Ohkay, ohkay. I think I can fix it. But we gotta be patient here, Ducky. We don't want a recurrence of womporfery, am I right? Just give me a couple paragraphs to think about it, see. Afterward, there won't even have been this pause, I promise. I can just trick the reader back round to the first sentence, and then you're back in Buffalo."

"More orthographic monkeyshines? No, no, no! I've been thinking, Izzy. What if nobody ever reads this? Then there won't be anybody's attention to ride on from one section to another. I'll be stuck beside your dead body in Illinois, stinking of fish emulsion forever. What about *that?*"

Izzy excogitated. "I never thought of that, Duck. I'll call you back."

"Izzy. . . !"

And Izzy hung up, as he always does in this paragraph. Fay had sneaked up behind him and grabbed him around the middle.

"Oh, Fay, what you do to me!" he said.

What kind of a match were Izzy and Fay? I'll tell you. ●

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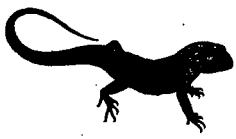
fishing for lizards

obtain these things—
a bamboo switch, say
three foot, maybe four
foot long, at most;
some fishing line,
or heavy nylon thread;
a good long day—

tie one end,
of course, of the line
to your pole. form
a slipknot in the other—
make, loosely, a noose. now go
to where lizards are—
hie thee to a copse.

find a lizard.
you must approach him
from behind—there will be
time for introductions later.
carefully position your noose
above and before
the head of your intended.

if you have gotten
this far, then
the hardest part is past.
lower your pole,
a bit at a time, and smoothly.
the slow, fine line will be
invisible to



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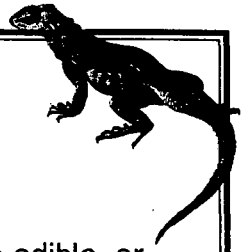
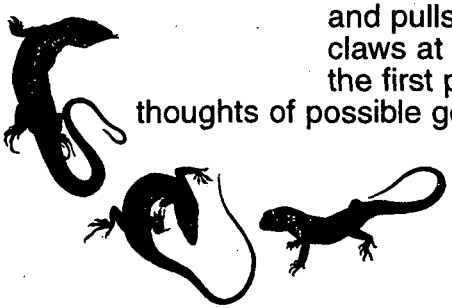


your herpetological
prey. (a lizard's eyes
are made for flies,
for small, quick
shapes that might be edible, or
for the larger,
that might eat;

it *cannot* see
your lizard lariat.)
now, having finally dangled
your snare before
that wizened lizard face,
all that's required is that
you pull it quickly back and up.

at this point
you have your lizard.
at this same point, your lizard,
which only a second before
was sunning himself
and happy with the known world,
finds himself held captive by

unseen, unknown bonds.
a supernatural force
has him by the throat,
and pulls him up. he kicks,
claws at the air, and forms
the first primitive, reptilian
thoughts of possible gods.



—W. Gregory Stewart

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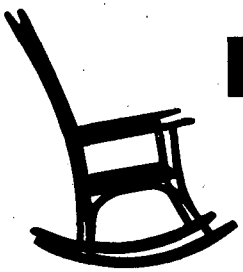
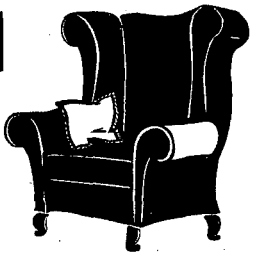


Janet Kagan



THE STUBBORNEST BROAD ON EARTH

Of her charming new tale the author says, "'The Stubbornest Broad on Earth' is the first story I've written that doesn't include my mom as a character—that's *her* mom and the farm she grew up on—and I think they'd both have liked it." Her editors certainly do.

There's always one. Tell the population Mount Saint Helens is about to blow its top and they ought to evacuate and somebody will set his feet and refuse to do so. Tell the town Hurricane Andrew's on its way and deadly and they've got to head for high ground, and somebody will say, "No, absolutely not." If the governments of Earth thought it would be any different this time, they had another think coming. Tell the population of a planet it's got to evacuate because old Sol is about to go nova and we've all got to pick up and move out—no doubt about it and several billion years too soon—and there'll still be that *one*.

That *one* was Cora Jowett. She was ninety-seven years old and admitted to every last one of them. Tiny as a bird, straight as an arrow, she'd

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farmed all her life and she was damned if she'd leave the land she'd sweated over all those years.

Her kids and grandkids all had their places on the evacuation fleet, but no amount of talking from them or from the sheriff would budge her, not even if the sheriff was Harry Johnson, her favorite grandson. She'd set her feet, she'd fold her arms, and she'd simply say, "No. This is my home. I was born here, and I'll die here."

The newspapers quickly dubbed her "The Stubbornest Woman on Earth" but Harry had heard his grandmother speak himself and knew the reporter had politically corrected her. "Your granddaddy always said I was the stubbornest broad on Earth," she'd told him, her chin high and defiant. "I guess it's time I proved him right. I buried his ashes under that oak that shades the front porch. I'd always planned to join him there when my time was done—and I'll be damned if I'll let a little thing like a nova ruin my plans."

She'd become a cause célèbre in the last few days. Preachers and movie stars and famous scientists and even the President came to speak to her—each and every one of them hoping to be the man or woman who could talk her into climbing aboard a shiny silver ship and heading out for the stars.

It amused the hell out of her. She let them all talk as long as they were willing to lend a hand to the chores. Knowing the city water would soon be gone, she made sure the old hand pump was still in good working order. Knowing she'd be without electricity, she laid in kerosene for the old lamps she'd brought down from the attic.

When the CEO of one of the local utility companies offered her an emergency generator, she accepted, and the entire world took this for a sign that if she'd accept one technological assist maybe she could be talked around. The CEO never told anybody Cora Jowett had made him chop two weeks' worth of firewood, "for when the generator breaks down."

They *even* sent "Doc Rickie." (Her real name was Fredricka Schall but by now everybody knew her face and thought they knew her personally. It was the Schall Drive that made the evacuation fleet possible and the Schall *drive* that made the evacuation plans go.) The reasoning went, if Doc Rickie could cajole and cozen an entire world into action, how hard could it be for her to convince the one last person. . . ?

Doc Rickie came out smiling—but shook her head at the assembled reporters. "No," she said, "she won't come." And that was all she said. She never told a word of the long quiet conversation they'd had between them or said a word about the three books and the family album and the seeds she'd been given to take along. "They weigh somewhat less than I do," the old woman had told her. She never said that Cora had given Fredricka the keeping of her children, and that Fredricka had given Cora the keeping of the last days of Earth.

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When Evacuation Week began, the President of the UN himself called Harry Johnson and asked him to give it one last try. Harry had spent his summers on Grandma Jowett's farm and he knew that once Grandma had made up her mind, that was that and there was no doing anything about it, but he went to say good-bye.

She was sitting contentedly in the rocker Granddaddy Jowett had carved for her one winter long ago. "Have a safe trip," she told him, as she always did. And then, quite unexpectedly, she said, "I hope that new planet's half as pretty as this one."

"They don't even know for sure there's a planet waiting," Harry said. "Be forty years before we can find out."

She said, "God will provide." Then she smiled and stopped rocking for a moment. "Seems to me I've been worrying about your new home for nothing. I promise you, God will take care of it. Any god who could make Earth this glorious can surely make your new home just as glorious. God's not likely to run out of imagination. That's what God is—the Great Imagination." She patted his hand and resumed her contented rocking. "You run along now. You mustn't miss your ship. And you give those great-grandchildren of mine all my love"—she gazed into the branches of the old oak—"and all Granddaddy Jowett's love too."

She sat on the porch until long after dark. The moon had risen bright and full, and every so often she caught the faint glimpse of a shadow against the coin-bright disc. One of those shadows held Harry and Milly and Seabright and all the grandchildren and the great-grandchildren. She wished them well.

When at last she went inside, she turned on the television. All of the channels had gone off the air. The radio gave her the same result but in noisier fashion. She nodded. There was no one left to run the stations now.

No one left but her. She discovered, much to her surprise, that she had one regret. She'd always wanted to see the pyramids, and now there was no flight—no pilot—to take her to Egypt. No use crying over spilt milk, Cora told herself, as her own grandmother had told her so many years ago.

But, on the whim, and because there was nobody to stop her, she went up to the attic and brought down a dusty pile of *National Geographics* to leaf through, as she'd done so many times before.

She smiled as she turned the pages. A beautiful world, Earth, and she'd hardly seen more of it than her own few acres. But here was proof, in glorious pictures. It occurred to her to wonder if the Evacuation Team had taken a collection of old *National Geographics*, for the children to leaf through on a lazy evening and to dream of faraway places just as she had.

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Then she laughed: those children would *see* a faraway place—a whole new world! She hoped someone someday would build pyramids for them as well. Surely their new world would have a desert somewhere on its face; surely someone would think of pyramids.

There was a knock at the door. Cora Jowett started violently, then rose to answer. Just like kids—probably one of them had forgotten something and they'd had to come back for it. She poked her glasses back up and glanced around the room—what could they possibly have forgotten here?

The knock came again and, still clutching the issue of *National Geographic* with her favorite shots of the pyramids, she went to find out.

She blinked into the moonlight that fell across the porch. Perhaps she'd fallen asleep on the couch, dreaming. Certainly she couldn't be awake. Three slender creatures bowed to her very politely and said, "Sir or madam, your sun will go nova in approximately sixteen days of your time. We are here to take you to a place of safety."

Well, for dream creatures, they were friendly enough. She opened the door and gestured them in. "You've come too late," she told them. "They've all left."

The dream creatures took some convincing on that count. Eventually, she made some tea and showed them the newspapers and the plans for the voyage and the civil defense instructions—she even turned on the television and put in the tape great-granddaughter Talitha had made of "all the people who talked to great-granny about coming with us, but great-granny said no." That last was Talitha herself explaining her tape. She looked oddly proud of great-granny's great stubbornness.

Somewhere in the midst of pouring the leader of the dream creatures another cup of tea, Cora Jowett at last came to the realization that she was not dreaming.

"We could rescue you," the smallest of them said.

"Don't be a—" the largest told him, finishing the sentence with a staticky sound. Cora inferred that the word was not translatable or perhaps not fit for a lady's ears. "She doesn't want to be rescued. You saw for yourself."

The middle-sized one managed to look sulky, despite the fact that his features didn't quite allow for such an expression. "We didn't realize there was an intelligent species on this world at all, until we started our full-scale study of a star about to go nova. We did our level best to scrounge the equipment to rescue you, and now we've gotten here too late and the only representative of the species left doesn't want to be rescued."

She almost felt sorry for him or her. They'd had such good intentions. She glanced at the shiny magazine beside her place at the kitchen table. "There is something you could do for me, if you would," she said.

The creatures brightened visibly.

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"I'd like to see the pyramids. Would one of your ships take me to Egypt to see them?"

They would. They did—they saw the pyramids and the Sphinx. They went to the Louvre in Paris and saw the Winged Victory, but not the Mona Lisa—she'd been light enough to take along. They saw the Empire State Building in New York, and the Golden Gate Bridge in San Francisco. They saw the Grand Canyon and the Okefenokee Swamp. They could have spent a thousand years and not seen everything there was to see. . . .

Still, they had a few more days and Cora meant to skim the cream—to show Yarik and Tan and Sproole the very best of Earth's sights. She smiled to herself. They were *very* young, she'd decided; the equivalent of college students perhaps, and they genuinely enjoyed her tour as much as she.

She thought she'd end with a second trip to the pyramids. Somehow they were the best of it, huge as mountains, but made for human reasons and made from sweat and planning and labor. As personal somehow as the Jowett farm. And then she had a thought.

"Sproole," she said. "Would the pyramids fit in your ship? You'd planned to take so many people—surely you could take a pyramid or two. Then my great-great-grandkids would find something of home waiting for them when they arrived. Think what a wonderful surprise that would be!"

"In our ship?" Sproole seemed vaguely startled. "Maybe. If we took it apart. Let me ask Tan—Tan's good with disassembling."

Cora could have grinned. Definitely very young—you could always count on one that was "good with disassembling."

All three had disappeared into their ship for a while. Cora made pancakes, enough for them all and then some. After all, the sun would run out before the flour would.

When they came back, there was something indefinably different in their manner. She waited until they'd finished wolfing down the pancakes, and then she said, "All right. What is it? The pyramid won't fit?"

It was the tallest, thinnest of them—Yarik—that answered at last. "We have some bad news."

"My dear," Cora said, "if the pyramid won't fit, it won't fit. No use crying over spilt milk." When he didn't understand that last, she said, again, "If it won't fit, it won't fit."

"It's not that, Granny Jowett," said Yarik. "I had to check the destination. There's no planet there to put them on. There's no planet there for your people to land on!"

Cora nodded gravely. "They did say that was a possibility." Forty years was a long trip. "Perhaps you could catch up with them and warn them. Point out the nearest Earth-like world."

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Sproole looked very sad. "The nearest one on the map is a hundred years—the rate they're traveling—in the other direction."

"A hundred years," said Cora. "My grandkids won't feel a fresh breeze on their faces or see a sunset again in their lives. Oh, how very sad." She glanced at the three aliens and said, "That was why I wouldn't go with them, you see. It was the idea of spending the rest of my life cooped up in a steel cage. . . ." The mere thought of it made her rise and walk toward the door. "Leave the dishes," she said. "Let's sit on the porch and watch the wind shake the quaking aspen till it's silver. Maybe, if we're lucky, we'll get a thunderstorm."

They followed her to the porch and sat beside her while she rocked. All three of them watched the leaves of the aspen shiver in the mild breeze.

At last Yarik said, "You aren't stubborn the way the people on the tape thought you were stubborn."

Cora laughed. "Oh, I'm stubborn, all right. I couldn't have gotten them to leave me here if I hadn't been."

"But," the alien persisted, "you would have left this orbit if you could have stayed on your farm."

"If they could have picked up the farm, breeze and oak and aspen and sky, and moved it all? Of course I'd have gone. That would have been taking my world, at least, with me." She smiled and touched the youngster gently on the arm. "If they made me the same offer today, I'd be even stubborner, though. You showed me that whole beautiful world I'd never seen. I wouldn't *dream* of going anywhere without the whole of it."

"Yes!" said Yarik, leaping to his feet. "That's what we'll do then!" Suddenly the three of them were on their feet and making excited staticky noises at each other. Sproole ran for the ship. Tan ran for the ship as well, but Cora kept a good hold on Yarik. "Simmer down, youngster," Cora said, "and tell me exactly what's going on."

Yarik simmered down long enough to say excitedly, "You thought we only meant to move the people! We couldn't fit all those people in our ship, Granny Jowett. We meant to move your planet—we've got all the equipment we need. All we need is *permission*. Anybody's permission. *Your* permission is just fine, since you're the only inhabitant."

"Move Earth? Where would you move it?"

Yarik said, "There's nothing wrong with the star your people chose. We could just put Earth in orbit around it. That solves their problem, too. Is it all right? Will you give us permission?"

Cora Jowett set her feet and folded her arms. "On two conditions," she said. She hadn't practiced for ninety-seven years for nothing: Cora Jowett knew how to be stubborn.

Harry Johnson walked up the familiar steps of his grandmother's front porch and tapped on the door. "Door's open," she said, "come on in."

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Seeing him, she dusted the flour from her hands into her apron. "Harry," she said, her wrinkles wreathing her face into ripple after ripple of smile. "Did you have a good trip?" She gave him a bone-cracking hug.

"I had a great trip, Gramma," he said. "How was yours?"

She guided him to the table and set a cup of coffee before him, then she plunged her hands once more into the pie dough. "Well," she said, "I can't complain. Yarik had a spot of trouble adjusting the orbits. Lost the red peppers and the basil, I think. But Yarik's young. Next time, I imagine, they'll get it right the first try."

"Yarik says you're the stubbornest person he . . . she? . . . ever met."

"Yes, dear," said Cora Jowett. "I know. But I couldn't see leaving the moon behind. After all, the *National Geographic* says even clams respond to the tides—and there wouldn't be a tide without a moon, now would there? And, as for having the kids pick up the Evacuation Fleet—well, I could hardly wait forty years for you to arrive, now could I?"

Probably she could have, Harry Johnson thought. And he'd have found her just the same, flour up to her wrists—or throwing feed to the hens, the only animals she kept these days. Or he might have found her sneaking milk to the barn cat with the new litter of kittens or on her knees in the garden, pulling out the dandelions. The tenderest parts of the dandelion would go into the salad. . . .

"Gramma," he said, shaking himself from this reverie. "Gramma, the president of the UN wants to see you."

"Tell him I'm busy," she said. "And while you're at it, tell him you and Milly and Seabright and all my grandkids are busy, too. You're all taking two weeks off. You can arrange to take two weeks off, can't you? Susie Williamson can take over for that long."

Harry Johnson laughed. "Gramma, the world will give you anything you ask for—that's what he wants to see you about."

"Good." Cora took the rolling pin to the pie dough. "Then tell him I want an airplane and a pilot."

"I beg your pardon?"

She draped the dough expertly into the pie plate and raised the plate to eye-level to shave around its edge. "I'm taking my children and my grandchildren and my great-grandchildren to Egypt to see the pyramids. And I'm not sure where we'll go from there—but it's a big world, Harry, and Yarik and Sproole and Tan and I never got to finish our tour." She heaped the pie with sliced apples, dotting them with butter, and laid the upper crust atop it. When she'd pricked the top, she slid it into the oven. "You've time to stay for pie, haven't you?"

Harry Johnson knew he had time to stay for pie—and time to see the pyramids—after all, Grandma Cora was the stubbornest broad on Earth. Granddad always said so. ●

—In loving memory of my grandma Cora

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NEXT ISSUE

MARCH COVER STORY

Mary Rosenblum, one of our most popular authors, whose novella "Gas Fish" was on this year's final Hugo Ballot and won the *Asimov's* Readers' Award poll, returns with one of her most exciting and exotic adventures yet, as human and alien antagonists must fight a battle of wits and will and nerve on a remote and hostile planet where the life of the contestants is literally hanging by a thread (over a thousand-foot drop!), with the destiny of the human race and the redemption of an individual's soul at stake, a suspenseful cat-and-mouse game that must be played out in the one place in the universe where the truth matters more than life or death: under the pitiless, all-seeing, unforgiving gaze of "The Eye of God." Don't miss this one!

TOP-FLIGHT WRITERS

Multiple **Arthur C. Clarke Award**-winner **Pat Cadigan** returns to these pages after too long an absence with a shrewd look at a future Private Eye who must risk everything to plug up a "Datableed"; new writer **David Marusek,** whose novella "We Were Out of Our Minds with Joy" was one of our most acclaimed stories in 1995, takes us to the same bizarre high-tech future for a look at the dangers and wild possibilities of owning an experimental machine servant who's "Getting to Know You"; Nebula- and World-Fantasy-Award-winner **Howard Waldrop,** who's been called "the resident Weird Mind of his generation," takes us to an exotic Far Future at the very End of Time, a place full of strange Wonders and stranger dangers, for an exciting tale of "Scientifiction" unlike any you've ever seen before; new Australian writer **Stephen Dedman** paints a bittersweet portrait of two young lovers caught, quite literally, between two worlds, and divided by every possible barrier of religion, politics, philosophy, and physiology, in a compelling story of lives in "Transit"; **Tony Daniel** takes us to a Europe where a strange New World full of unexpected potentials and unseen pitfalls is being born out of the ashes of the Old World, and lets us sample the programming on "Radio Praha"; **S.N. Dyer** offers a sharp, disturbing snapshot of a "Wild Child"; and **Steven Utley** takes us on a tour of "The Here and Now"—which turns out to be not at all the way that you think that it is.

EXCITING FEATURES

Robert Silverberg's "Reflections" column puts forth the proposition that "The Moon Is A Sexy Geisha"; and **Norman Spinrad's** "On Books" asks the question, "Who Will Resurrect Science Fiction?"; plus an array of cartoons, poems, letters, and other features. Look for our March issue on sale on your newsstand on February 24, 1998, or subscribe today and be sure to miss none of the great stuff we have coming up for you this year!

COMING SOON: exciting new stories by **Nancy Kress, Terry Bisson, Ian Mcdonald, James Patrick Kelly, Norman Spinrad, Ian R Macleod, L. Timmel Duchamp, Gregory Feeley, Michael Swanwick, Avram Davidson, Robert Reed,** and many others.

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Greg Egan

THE PLANCK DIVE

Greg Egan's last three stories for *Asimov's*, "Cocoon" (May 1994); "Luminous" (September 1995); and "Tap" (November 1995), have all made the Hugo award's final ballot. The paperback edition of Mr. Egan's near-future novel, *Distress*, and the hard-cover edition of his far-future novel, *Diaspora*, have just been released by HarperPrism.

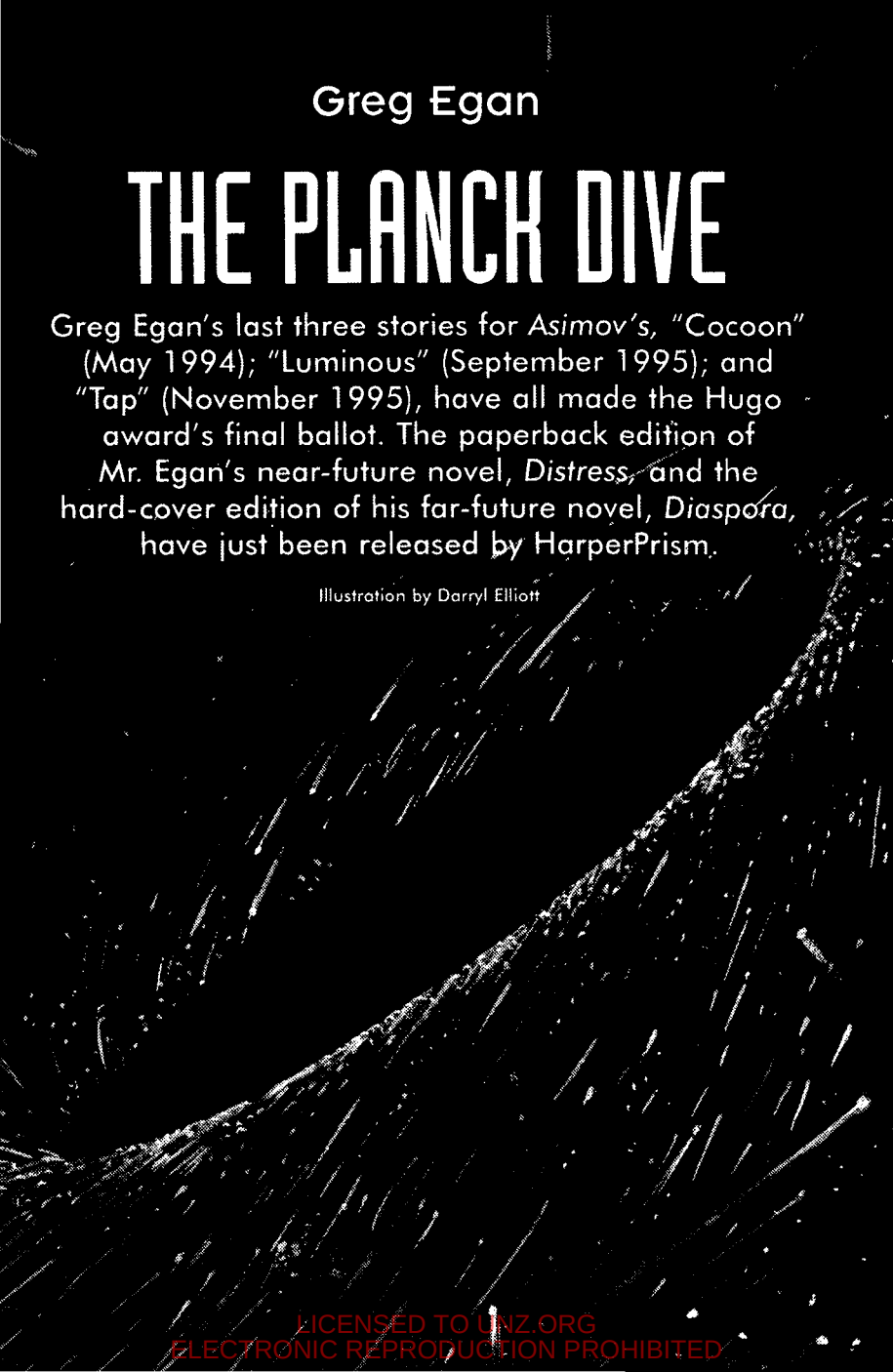

Illustration by Darryl Elliott

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Gisela was contemplating the advantages of being crushed—almost certainly to death, albeit as slowly as possible—when the messenger appeared in her homescape. She noted its presence but instructed it to wait, a sleek golden courier with winged sandals stretching out a hand impatiently, frozen in mid-stride twenty delta away.

The scape was currently an expanse of yellow dunes beneath a pale blue sky, neither too stark nor too distracting. Gisela, reclining on the cool sand, was intent on a giant, scruffy triangle hovering at an incline over the dunes, each edge resembling a loose bundle of straw. The triangle was a collection of Feynman diagrams, showing just a few of the many ways a particle could move between three events in spacetime. A quantum particle could not be pinned down to any one path, but it could be treated as a sum of localized components, each following a different trajectory and taking part in a different set of interactions along the way.

In "empty" spacetime, interactions with virtual particles caused each component's phase to rotate constantly, like the hand of a clock. But the time measured by any kind of clock traveling between two events in flat spacetime was greatest when the route taken was a straight line—any detours caused time dilation, shortening the trip—and so a plot of phase shift versus detour size also reached its peak for a straight line. Since this peak was smooth and flat, a group of nearly straight paths clustered around it all had similar phase shifts, and these paths allowed many more components to arrive in phase with each other, reinforcing each other, than any equivalent group on the slopes. Three straight lines, glowing red through the center of each "bundle of straw," illustrated the result: the classical paths, the paths of highest probability, were straight lines.

In the presence of matter, all the same processes became slightly skewed. Gisela added a couple of nanograms of lead to the model—a few trillion atoms, their world lines running vertically through the center of the triangle, sprouting their own thicket of virtual particles. Atoms were neutral in charge and color, but their individual electrons and quarks still scattered virtual photons and gluons. Every kind of matter interfered with some part of the virtual swarm, and the initial disturbance spread out through spacetime by scattering virtual particles itself, rapidly obliterating any difference between the effect of a ton of rock or a ton of neutrinos, growing weaker with distance according to a roughly inverse square law. With the rain of virtual particles—and the phase shifts they created—varying from place to place, the paths of highest probability ceased obeying the geometry of flat spacetime. The luminous red triangle of most-probable trajectories was now visibly curved.

The key idea dated back to Sakharov: gravity was nothing but the residue of the imperfect cancellation of other forces; squeeze the quantum vacuum hard enough and Einstein's equations fell out. But since Einstein, every theory of gravity was also a theory of *time*. Relativity de-

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manded that a free-falling particle's rotating phase agree with every other clock that traveled the same path, and once gravitational time dilation was linked to changes in virtual particle density, every measure of time—from the half-life of a radioisotope's decay (stimulated by vacuum fluctuations) to the vibrational modes of a sliver of quartz (ultimately due to the same phase effects as those giving rise to classical paths)—could be reinterpreted as a count of interactions with virtual particles.

It was this line of reasoning that had led Kumar—a century after Sakharov, building on work by Penrose, Smolin, and Rovelli—to devise a model of spacetime as a quantum sum of every possible network of particle world lines, with classical "time" arising from the number of intersections along a given strand of the net. This model had been an unqualified success, surviving theoretical scrutiny and experimental tests for centuries. But it had never been validated at the smallest length scales, accessible only at absurdly high energies, and it made no attempt to explain the basic structure of the nets, or the rules that governed them. Gisela wanted to know where those details came from. She wanted to understand the universe at its deepest level, to touch the beauty and simplicity that lay beneath it all.

That was why she was taking the Planck Dive.

The messenger caught her eye again. It was radiating tags indicating that it represented Cartan's mayor: non-sentient software that dealt with the maintenance of good relations with other polises, observing formal niceties and smoothing away minor points of conflict in those cases where no real citizen-to-citizen connections existed. Since Cartan had been in orbit around Chandrasekhar, ninety-seven light years from Earth, for almost three centuries—and was currently even further from all the other spacefaring polises—Gisela was at a loss to imagine what urgent diplomatic tasks the mayor could be engaged in, let alone why it would want to consult her.

She sent the messenger an activation tag. Deferring to the scape's aesthetic of continuity, it sprinted across the dunes, coming to a halt in front of her in a cloud of fine dust. "We're in the process of receiving two visitors from Earth."

Gisela was astonished. "Earth? Which polis?"

"Athena. The first one has just arrived; the second will be in transit for another ninety minutes."

Gisela had never heard of Athena, but ninety minutes per person sounded ominous. Everything meaningful about an individual citizen could be packed into less than an exabyte, and sent as a gamma-ray burst a few milliseconds long. If you wanted to simulate an entire flesher body—cell by cell, redundant viscera and all—that was a harmless enough eccentricity, but lugging the microscopic details of your "very own" small intestine ninety-seven light-years was just being precious.

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"What do you know about Athena? In brief."

"It was founded in 2312, with a charter expressing the goal of 'regaining the lost flesher virtues.' In public fora, its citizens have shown little interest in exopolitan reality—other than flesher history and artforms—but they do participate in some contemporary interpolis cultural activities."

"So why have these two come here?" Gisela laughed. "If they're refugees from boredom, surely they could have sought asylum a little closer to home?"

The mayor took her literally. "They haven't adopted Cartan citizenship; they've entered the polis with only visitor privileges. In their transmission preamble they stated that their purpose in coming was to witness the Planck Dive."

"Witness—not take part in?"

"That's what they said."

They could have witnessed as much from home as any non-participant here in Cartan. The Dive team had been broadcasting everything—studies, schematics, simulations, technical arguments, metaphysical debates—from the moment the idea had coalesced out of little more than jokes and thought experiments, a few years after they'd gone into orbit around the black hole. But at least Gisela now knew why the mayor had picked on her; she'd volunteered to respond to any requests for information about the Dive that couldn't be answered automatically from public sources. No one seemed to have found their reports to be lacking a single worthwhile detail, though, until now.

"So the first one's suspended?"

"No. She woke as soon as she arrived."

That seemed even stranger than their excess baggage. If you were traveling with someone, why not delay activation until your companion caught up? Or better yet, package yourselves as interleaved bits?

"But she's still in the arrival lounge?"

"Yes."

Gisela hesitated. "Shouldn't I wait until the other one's all here? So I can greet them together?"

"No." The mayor seemed confident on this point. Gisela wished interpolis protocol allowed non-sentient software to play host; she felt woefully ill-prepared for the role herself. But if she started consulting people, seeking advice, and looking into Athena's culture in depth, the visitors would probably have toured Cartan and gone home before she was ready for them.

She steeled herself, and jumped.

The last person who'd whimsically redesigned the arrival lounge had made it a wooden pier surrounded by gray, windswept ocean. The first of

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the two visitors was still standing patiently at the end of the pier, which was just as well; it was unbounded in the other direction, and walking a few kilodelta to no avail might have been a bit dispiriting. Her fellow traveler, still in transit, was represented by a motionless placeholder. Both icons were highly anatomical-realist, clothed but clearly male and female, the unfrozen female much younger-looking. Gisela's own icon was more stylized, and her surface, whether "skin" or "clothing"—either could gain a tactile sense if she wished—was textured with diffuse reflection rules not quite matching the optical properties of any real substance.

"Welcome to Cartan. I'm Gisela." She stretched out her hand, and the visitor stepped forward and shook it—though it was possible that she perceived and executed an entirely different act, cross-translated through gestural interlingua.

"I'm Cordelia. This is my father, Prospero. We've come all the way from Earth." She seemed slightly dazed, a response Gisela found entirely reasonable. Back in Athena, whatever elaborate metaphoric action they'd used to instruct the communications software to halt them, append suitable explanatory headers and checksums, then turn the whole package bit-by-bit into a stream of modulated gamma rays, it could never have fully prepared them for the fact that in a subjective instant they'd be stepping ninety-seven years into the future, and ninety-seven light-years from home.

"You're here to observe the Planck Dive?" Gisela chose to betray no hint of puzzlement; it would have been pointlessly cruel to drive home the fact that they could have seen everything from Athena. Even if you fetishized realtime data over lightspeed transmissions, it could hardly be worth slipping one-hundred-and-ninety-four years out of synch with your fellow citizens.

Cordelia nodded shyly, and glanced at the statue beside her. "My father, really . . ."

Meaning what? It was all his idea? Gisela smiled encouragingly, hoping for clarification, but none was forthcoming. She'd been wondering why a Prospero had named his daughter Cordelia, but now it struck her as only prudent—if you had to succumb to a Shakespearean names fad at all—not to put anyone from the same play together in one family.

"Would you like to look around? While you're waiting for him?"

Cordelia stared at her feet, as if the question was profoundly embarrassing.

"It's up to you." Gisela laughed. "I have no idea what constitutes the polite treatment of half-delivered relatives." It was unlikely that Cordelia did, either; citizens of Athena clearly didn't make a habit of crossing interstellar distances, and the connections on Earth all had so much bandwidth that the issue would never arise. "But if it was me in transit, I wouldn't mind at all."

Cordelia hesitated. "Could I see the black hole, please?"

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"Of course." Chandrasekhar possessed no blazing accretion disk—it was six billion years old, and had long ago swept the region clean of gas and dust—but it certainly left the imprint of its presence on the ordinary starlight around it. "I'll give you the short tour, and we'll be back long before your father's awake." Gisela examined the bearded icon; with his gaze fixed on the horizon and his arms at his sides, he appeared to be on the verge of bursting into song. "Assuming he's not running on partial data already. I could have sworn I saw those eyes move."

Cordelia smiled slightly, then looked up and said solemnly, "That's not how we were packaged."

Gisela sent her an address tag. "Then he'll be none the wiser. Follow me."

They stood on a circular platform in empty space. Gisela had inflected the scape's address to give the platform "artificial gravity"—a uniform one gee, regardless of their motion—and a transparent dome full of air at standard temperature and pressure. Presumably all Athena citizens were set up to ignore any scape parameters that might cause them discomfort, but it still seemed like a good idea to err on the side of caution. The platform itself was a compromise, five delta wide—offering some protection from vertigo, but small enough to let its occupants see some forty degrees below "horizontal."

Gisela pointed. "There it is: Chandrasekhar. Twelve solar masses. Seventeen thousand kilometers away. It might take you a moment to spot it; it looks about the same as the new moon from Earth." She'd chosen their coordinates and velocity carefully; as she spoke, a bright star split in two, then flared for a moment into a small, perfect ring as it passed directly behind the hole. "Apart from gravitational lensing, of course."

Cordelia smiled, obviously delighted. "Is this a real view?"

"Partly. It's based on all the images we've received so far from a whole swarm of probes—but there are still viewpoints that have never been covered, and need to be interpolated. That includes the fact that we're almost certainly moving with a different velocity than any probe that passed through the same location—so we're seeing things differently, with different Doppler shifts and aberration."

Cordelia absorbed this with no sign of disappointment. "Can we go closer?"

"As close as you like."

Gisela sent control tags to the platform, and they spiraled in. For a while it looked as if there'd be nothing more to see; the featureless black disk ahead of them grew steadily larger, but it clearly wasn't going to blossom with any kind of detail. Gradually, though, a congested halo of lensed images began to form around it, and you didn't need the flash of an Einstein ring to see that light was behaving strangely.

"How far away are we now?"

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"About thirty-four M." Cordelia looked uncertain. Gisela added, "Six hundred kilometers—but if you convert mass into distance in the natural way, that's thirty-four times Chandrasekhar's mass. It's a useful convention; if a hole has no charge or angular momentum, its mass sets the scale for all the geometry: the event horizon is always at two M, light forms circular orbits at three M, and so on." She conjured up a spacetime map of the region outside the hole, and instructed the scape to record the platform's world line on it. "Actual distances traveled depend on the path you take, but if you think of the hole as being surrounded by spherical shells on which the tidal force is constant—something tangible you can measure on the spot—you can give them each a radius of curvature without caring about the details of how you might travel all the way to their center." With one spatial dimension omitted to make room for time, the shells became circles, and their histories on the map were shown as concentric translucent cylinders.

As the disk itself grew, the distortion around it spread faster. By ten M, Chandrasekhar was less than sixty degrees wide, but even constellations in the opposite half of the sky were visibly crowded together, as incoming light rays were bent into more radial paths. The gravitational blue shift, uniform across the sky, was strong enough now to give the stars a savage glint—not so much icy, as blue-hot. On the map, the light cones dotted along their world line—structures like stylized conical hourglasses, made up of all the light rays passing through a given point at a given moment—were beginning to tilt toward the hole. Light cones marked the boundaries of physically possible motion; to cross your own light cone would be to outrace light.

Gisela created a pair of binoculars and offered them to Cordelia. "Try looking at the halo."

Cordelia obliged her. "Ah! Where did all those stars come from?"

"Lensing lets you see the stars behind the hole, but it doesn't stop there. Light that grazes the three-M shell orbits part-way around the hole before flying off in a new direction—and there's no limit to how far it can swing around, if it grazes the shell close enough." On the map, Gisela sketched half a dozen light rays approaching the hole from various angles; after wrapping themselves in barber's-pole helices at slightly different distances from the three-M cylinder, they all headed off in almost the same direction. "If you look into the light that escapes from those orbits, you see an image of the whole sky, compressed into a narrow ring. And at the inner edge of that ring, there's a smaller ring, and so on—each made up of light that's orbited the hole one more time."

Cordelia pondered this for a moment. "But it can't go on forever, can it? Won't diffraction effects blur the pattern, eventually?"

Gisela nodded, hiding her surprise. "Yeah. But I can't show you that here. This scape doesn't run to that level of detail!"

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They paused at the three-M shell itself. The sky here was perfectly bisected: one hemisphere in absolute darkness, the other packed with vivid blue stars. Along the border, the halo arched over the dome like an impossibly geometricized Milky Way. Shortly after Cartan's arrival, Gisela had created a homage to Escher based on this view, tiling the half-sky with interlocking constellations that repeated at the edge in ever-smaller copies. With the binoculars on 1000 X, they could see a kind of silhouette of the platform itself "in the distance": a band of darkness blocking a tiny part of the halo in every direction.

Then they continued toward the event horizon—oblivious to both tidal forces and the thrust they would have needed to maintain such a leisurely pace in reality.

The stars were now all brightest at ultraviolet frequencies, but Gisela had arranged for the dome to filter out everything but light from the flesher visible spectrum, in case Cordelia's simulated skin took descriptions of radiation too literally. As the entire erstwhile celestial sphere shrank to a small disk, Chandrasekhar seemed to wrap itself around them—and this optical illusion had teeth. If they'd fired off a beam of light away from the hole, but failed to aim it at that tiny blue window, it would have bent right around like the path of a tossed rock and dived back into the hole. No material object could do better; the choice of escape routes was growing narrower. Gisela felt a frisson of claustrophobia; soon she'd be doing this for real.

They paused again to hover—implausibly—just above the horizon, with the only illumination a pin-prick of heavily blue-shifted radio waves behind them. On the map, their future light cone led almost entirely into the hole, with just the tiniest sliver protruding from the two-M cylinder. Gisela said, "Shall we go through?"

Cordelia's face was etched in violet. "How?"

"Pure simulation. As authentic as possible . . . but not so authentic that we'll be trapped, I promise."

Cordelia spread her arms, closed her eyes, and mimed falling backward into the hole. Gisela instructed the platform to cross the horizon.

The speck of sky blinked out, then began to expand again, rapidly. Gisela was slowing down time a millionfold; in reality they would have reached the singularity in a fraction of a millisecond.

Cordelia said, "Can we stop here?"

"You mean freeze time?"

"No, just hover."

"We're doing that already. We're not moving." Gisela suspended the scape's evolution. "I've halted time; I think that's what you wanted."

Cordelia seemed about to dispute this, but then she gestured at the now-frozen circle of stars. "Outside, the blue shift was the same right across the sky . . . but now the stars at the edge are much bluer. I don't understand."

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Gisela said, "In a way it's nothing new; if we'd let ourselves free-fall toward the hole, we would have been moving fast enough to see a whole range of Doppler shifts superimposed on the gravitational blue shift, long before we crossed the horizon. You know the starbow effect?"

"Yes." Cordelia examined the sky again, and Gisela could almost see her testing the explanation, imagining how a blue-shifted starbow should look. "But that only makes sense if we're moving—and you said we weren't."

"We're not, by one perfectly good definition. But it's not the definition that applied outside." Gisela highlighted a vertical section of their world line, where they'd hovered on the three-M shell. "Outside the event horizon—given a powerful enough engine—you can always stay fixed on a shell of constant tidal force. So it makes sense to choose that as a definition of being 'motionless'—making time on this map strictly vertical. But inside the hole, that becomes completely incompatible with experience; your light cone tilts so far that your world line *must* cut through the shells. And the simplest new definition of being 'motionless' is to burrow straight through the shells—the complete opposite of trying to cling to them—and to make 'map time' strictly horizontal, pointing toward the center of the hole." She highlighted a section of their now-horizontal world line.

Cordelia's expression of puzzlement began to give way to astonishment. "So when the light cones tip over far enough . . . the definitions of 'space' and 'time' have to tip with them?"

"Yes! The center of the hole lies in our future, now. We won't hit the singularity face-first, we'll hit it future-first—just like hitting the Big Crunch. And the direction on this platform that used to point toward the singularity is now facing 'down' on the map—into what seems from the outside to be the hole's past, but is really a vast stretch of space. There are billions of light-years laid out in front of us—the entire history of the hole's interior, converted into space—and it's expanding as we approach the singularity. The only catch is, elbow room and head room are in short supply. Not to mention time."

Cordelia stared at the map, entranced. "So the inside of the hole isn't a sphere at all? It's a spherical shell in two directions, with the shell's history converted into space as the third . . . making the whole thing the surface of a hypercylinder? A hypercylinder that's increasing in length, while its radius shrinks." Suddenly her face lit up. "And the blue shift is like the blue shift when the universe starts contracting?" She turned to the frozen sky. "Except this space is only shrinking in two directions—so the more the angle of the starlight favors those directions, the more it's blue-shifted?"

"That's right." Gisela was no longer surprised by Cordelia's rapid uptake; the mystery was how she could have failed to learn everything

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there was to know about black holes long ago. With unfettered access to a half-decent library and rudimentary tutoring software, she would have filled in the gaps in no time. But if her father had dragged her all the way to Cartan just to witness the Planck Dive, how could he have stood by and allowed Athena's culture to impede her education? It made no sense.

Cordelia raised the binoculars and looked sideways, around the hole. "Why can't I see us?"

"Good question." Gisela drew a light ray on the map, aimed sideways, leaving the platform just after they'd crossed the horizon. "At the three-M shell, a ray like this would have followed a helix in spacetime, coming back to our world line after one revolution. But here, the helix has been flipped over and squeezed into a spiral—and at best, it only has time to travel halfway around the hole before it hits the singularity. None of the light we've emitted since crossing the horizon can make it back to us.

"That's assuming a perfectly symmetrical Schwarzchild black hole, which is what we're simulating. And an ancient hole like Chandrasekhar probably has settled down to a fair approximation of the Schwarzchild geometry. But close to the singularity, even infalling starlight would be blue-shifted enough to disrupt it, and anything more massive—like us, if we really were here—would cause chaotic changes even sooner." She instructed the scape to switch to Belinsky-Khalatnikov-Lifshitz geometry, then restarted time. The stars began to shimmer with distortion, as if seen through a turbulent atmosphere, then the sky itself seemed to boil, red shifts and blue shifts sweeping across it in churning waves. "If we were embodied, and strong enough to survive the tidal forces, we'd feel them oscillating wildly as we passed through regions collapsing and expanding in different directions." She modified the spacetime map accordingly, and enlarged it for a better view. Close to the singularity, the once-regular cylinders of constant tidal force now disintegrated into a random froth of ever finer, ever more distorted bubbles.

Cordelia examined the map with an expression of consternation. "How are you going to do any kind of computation in an environment like that?"

"We're not. This is chaos—but chaotic systems are highly susceptible to manipulation. You know Tiplerian theology? The doctrine that we should try to reshape the universe to allow infinite computation to take place before the Big Crunch?"

"Yes."

Gisela spread her arms to take in all of Chandrasekhar. "Reshaping a black hole is easier. With a closed universe, all you can do is rearrange what's already there; with a black hole, you can pour new matter and radiation in from all directions. By doing that, we're hoping to steer the geometry into a more orderly collapse—not the Schwarzchild version, but one that lets light circumnavigate the space inside the hole many times.

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Cartan Null will be made of counter-rotating beams of light, modulated with pulses like beads on a string. As they pass through each other, the pulses will interact; they'll be blue-shifted to energies high enough for pair-production, and eventually even high enough for gravitational effects. Those beams will be our memory, and their interactions will drive all our computation—with luck, down almost to the Planck scale: ten-to-the-minus-thirty-five meters."

Cordelia contemplated this in silence, then asked hesitantly, "But how much computation will you be able to do?"

"In total?" Gisela shrugged. "That depends on details of the structure of spacetime at the Planck scale—details we won't know until we're inside. There are some models that would allow us to do the whole Tiplerian thing in miniature: infinite computation. But most give a range of finite answers, some large, some small."

Cordelia was beginning to look positively gloomy. Surely she'd known about the Divers' fate all along?

Gisela said, "You do realize we're sending in clones? No one's moving their sole version into Cartan Null!"

"I know." Cordelia averted her eyes. "But once you *are* the clone . . . won't you be afraid of dying?"

Gisela was touched. "Only slightly. And not at all, at the end. While there's still a slender chance of infinite computation—or even some exotic discovery that might allow us to escape—we'll hang on to the fear of death. It should help motivate us to examine all the options! But if and when it's clear that dying is inevitable, we'll switch off the old instinctive response, and just accept it."

Cordelia nodded politely, but she didn't seem at all convinced. If you'd been raised in a polis that celebrated "the lost flesher virtues," this probably sounded like cheating at best, and self-mutilation at worst.

"Can we go back now, please? My father will be awake soon."

"Of course." Gisela wanted to say something to this strange, solemn child to put her mind at ease, but she had no idea where to begin. So they jumped out of the scape together—out of their fictitious light cones—abandoning the simulation before it was forced to admit that it was offering neither the chance of new knowledge, nor the possibility of death.

When Prospero woke, Gisela introduced herself and asked what he wished to see. She suggested a schematic of Cartan Null; it didn't seem tactful to mention that Cordelia had already toured Chandrasekhar, but offering him a scape that neither had seen seemed like a diplomatic way of side-stepping the issue.

Prospero smiled at her indulgently. "I'm sure your Falling City is ingeniously designed, but that's of no interest to me. I'm here to scrutinize your motives, not your machines."

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"Our motives?" Gisela wondered if there'd been a translation error. "We're curious about the structure of spacetime. Why else would someone dive into a black hole?"

Prospero's smile broadened. "That's what I'm here to determine. There's a wide range of choices besides the Pandora myth: Prometheus, Quixote, the Grail of course . . . perhaps even Orpheus. Do you hope to rescue the dead?"

"Rescue the dead?" Gisela was dumbfounded. "Oh, you mean Tiplerian resurrection? No, we have no plans for that at all. Even if we obtained infinite computing power, which is unlikely, we'd have far too little information to recreate any specific dead fleshers. As for resurrecting everyone by brute force, simulating every possible conscious being . . . there'd be no sure way to screen out in advance simulations that would experience extreme suffering—and statistically, they're likely to outnumber the rest by about ten thousand to one. So the whole thing would be grossly unethical."

"We shall see." Prospero waved her objections away. "What's important is that I meet all of Charon's passengers as soon as possible."

"Charon's. . . ? You mean the Dive team?"

Prospero shook his head with an anguished expression, as if he'd been misunderstood, but he said, "Yes, assemble your 'Dive team.' Let me speak to them all. I can see how badly I'm needed here!"

Gisela was more bewildered than ever. "Needed? You're welcome here, of course . . . but in what way are you needed?"

Cordelia reached over and tugged at her father's arm. "Can we wait in the castle? I'm so tired." She wouldn't look Gisela in the eye.

"Of course, my darling!" Prospero leant down and kissed her forehead. He pulled a rolled-up parchment out of his robe and tossed it into the air. It unfurled into a doorway, hovering above the ocean beside the pier, leading into a sunlit scape. Gisela could see vast, overgrown gardens, stone buildings, winged horses in the air. It was a good thing they'd compressed their accommodation more efficiently than their bodies, or they would have tied up the gamma ray link for about a decade.

Cordelia stepped through the doorway, holding Prospero's hand, trying to pull him through. Trying, Gisela finally realized, to shut him up before he could embarrass her further.

Without success. With one foot still on the pier, Prospero turned to Gisela. "Why am I needed? I'm here to be your Homer, your Virgil, your Dante, your Dickens! I'm here to extract the mythic essence of this glorious, tragic endeavor! I'm here to grant you a gift infinitely greater than the immortality you seek!"

Gisela didn't bother pointing out, yet again, that she had every expectation of a much shorter life inside the hole than out. "What's that?"

"I'm here to make you *legendary!*" Prospero stepped off the pier, and the doorway contracted behind him.

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Gisela stared out across the ocean, unseeing for a moment, then sat down slowly and let her feet dangle in the icy water.

Certain things were beginning to make sense.

"Be nice," Gisela pleaded. "For Cordelia's sake."

Timon feigned wounded puzzlement. "What makes you think I won't be nice? I'm always nice." He morphed briefly from his usual angular icon—all rib-like frames and jointed rods—into a button-eyed teddy bear.

Gisela groaned softly. "Listen. If I'm right—if she's thinking of migrating to Cartan—it will be the hardest decision she's ever had to make. If she could just walk away from Athena, she would have done it by now—instead of going to all the trouble of making her father believe that it was his idea to come here."

"What makes you so sure it wasn't?"

"Prospero has no interest in reality; the only way he could have heard of the Dive would be Cordelia bringing it to his attention. She must have chosen Cartan because it's far enough from Earth to make a clean break—and the Dive gave her the excuse she needed, a fit subject for her father's 'talents' to dangle in front of him. But until she's ready to tell him that she's not going back, we mustn't alienate him. We mustn't make things harder for her than they already are."

Timon rolled his eyes into his anodized skull. "All right! I'll play along! I suppose there is a chance you might be reading her correctly. But if you're mistaken . . ."

Prospero chose that moment to make his entrance, robes billowing, daughter in tow. They were in a scape created for the occasion, to Prospero's specifications: a room shaped like two truncated square pyramids joined at their bases, paneled in white, with a twenty-M view of Chandrasekhar through a trapezoidal window. Gisela had never seen this style before; Timon had christened it "Athenian Astrokitsch."

The five members of the Dive team were seated around a semi-circular table. Prospero stood before them while Gisela made the introductions: Sachio, Tiet, Vikram, Timon. She'd spoken to them all, making the case for Cordelia, but Timon's half-hearted concession was the closest thing she'd received to a guarantee. Cordelia shrank into a corner of the room, eyes downcast.

Prospero began soberly. "For nigh on a thousand years, we, the descendants of the flesh, have lived our lives wrapped in dreams of heroic deeds long past. But we have dreamed in vain of a new Odyssey to inspire us, new heroes to stand beside the old, new ways to retell the eternal myths. Three more days, and your journey would have been wasted, lost to us forever." He smiled proudly. "But I have arrived in time to pluck your tale from the very jaws of gravity!"

Tiet said, "Nothing was at risk of being lost. Information about the

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Dive is being broadcast to every polis, stored in every library." Tiet's icon was like a supple jeweled statue carved from ebony.

Prospero waved a hand dismissively. "A stream of technical jargon. In Athena, it might as well have been the murmuring of the waves."

Tiet raised an eyebrow. "If your vocabulary is impoverished, augment it—don't expect us to impoverish our own. Would you give an account of classical Greece without mentioning the name of a single city-state?"

"No. But those are universal terms, part of our common heritage—"

"They're terms that have no meaning outside a tiny region of space, and a brief period of time. Unlike the terms needed to describe the Dive, which are applicable to every quartic femtometre of spacetime."

Prospero replied, a little stiffly, "Be that as it may, in Athena we prefer poetry to equations. And I have come to honor your journey in language that will resonate down the corridors of the imagination for millennia."

Sachio said, "So you believe you're better qualified to portray the Dive than the participants?" Sachio appeared as an owl, perched inside the head of a flesher-shaped wrought-iron cage full of starlings.

"I am a narratologist."

"You have some kind of specialized training?"

Prospero nodded proudly. "Though in truth, it is a vocation. When ancient fleshers gathered around their campfires, I was the one telling stories long into the night, of how the gods fought among themselves, and even mortal warriors were raised up into the sky to make the constellations."

Timon replied, deadpan, "And I was the one sitting opposite, telling you what a load of drivel you were spouting." Gisela was about to turn on him, to excoriate him for breaking his promise, when she realized that he'd spoken to her alone, routing the data outside the scape. She shot him a poisonous glance.

Sachio's owl blinked with puzzlement. "But you find the Dive itself incomprehensible. So how are you suited to explain it to others?"

Prospero shook his head. "I have come to create enigmas, not explanations. I have come to shape the story of your descent into a form that will live on long after your libraries have turned to dust."

"Shape it how?" Vikram was as anatomically correct as a Da Vinci sketch, when he chose to be, but he lacked the tell-tale signs of a physiological simulation: no sweat, no dead skin, no shed hair. "You mean change things?"

"To extract the mythic essence, mere detail must become subservient to a deeper truth."

Timon said, "I think that was a yes."

Vikram frowned amiably. "So what exactly will you change?" He spread his arms, and stretched them to encompass his fellow team members. "If we're to be improved upon, do tell us how."

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Prospero said cautiously, "Five is a poor number, for a start. Seven, perhaps, or twelve."

"Whew." Vikram grinned. "Shadowy extras only; no one's for the chop."

"And the name of your vessel . . ."

"Cartan Null? What's wrong with that? Cartan was a great flesher mathematician, who clarified the meaning and consequences of Einstein's work. 'Null' because it's built of null geodesics: the paths followed by light rays."

"Posterity," Prospero declared, "will like it better as 'The Falling City'—its essence unencumbered by your infelicitous words."

Tiet said coolly, "We named this polis after Elie Cartan. Its clone inside Chandrasekhar will be named after Elie Cartan. If you're unwilling to respect that, you might as well head back to Athena right now, because no one here is going to offer you the slightest cooperation."

Prospero glanced at the others, possibly looking for some evidence of dissent. Gisela had mixed feelings; Prospero's mythopoeic babble would not outlive the truth in the libraries, whatever he imagined, so in a sense it hardly mattered what it contained. But if they didn't draw the line somewhere, she could imagine his presence rapidly becoming unbearable.

He said, "Very well. Cartan Null. I am an artisan as well as an artist; I can work with imperfect clay."

As the meeting broke up, Timon cornered Gisela. Before he could start complaining, she said, "If you think three more days of *that* is too awful to contemplate, imagine what it's like for Cordelia."

Timon shook his head. "I'll keep my word. But now that I've seen what she's up against . . . I really don't think she's going to make it. If she's been wrapped in propaganda about the golden age of fleshers all her life, how can you expect her to see through it? A polis like Athena forms a closed trapped memetic surface: concentrate enough Prosperos in one place, and there's no escape."

Gisela eyed him balefully. "She's here, isn't she? Don't try telling me that she's bound to Athena forever, just because she was created there. Nothing's as simple as that. Even black holes emit Hawking radiation."

"Hawking radiation carries no information. It's thermal noise; you can't tunnel out with it." Timon swept two fingers along a diagonal line, the gesture for "QED."

Gisela said, "It's only a metaphor, you idiot, not an isomorphism. If you can't tell the difference, maybe you should fuck off to Athena yourself."

Timon mimed pulling his hand back from something biting it, and vanished.

Gisela looked around the empty scape, angry with herself for losing her temper. Through the window, Chandrasekhar was calmly proceeding to crush spacetime out of existence, as it had for the past six billion years.

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She said, "And you'd better not be right."

Fifty hours before the Dive, Vikram instructed the probes in the lowest orbits to begin pouring nanomachines through the event horizon. Gisela and Cordelia joined him in the control scape, a vast hall full of maps and gadgets for manipulating the hardware scattered around Chandrasekhar. Prospero was off interrogating Timon, an ordeal Vikram had just been through himself. "Oedipal urges" and "womb/vagina symbolism" had figured prominently, though Vikram had cheerfully informed Prospero that as far as he knew, no one in Cartan had ever shown much interest in either organ. Gisela found herself wondering precisely how Cordelia had been created; slavish simulations of flesher childbirth didn't bear thinking about.

The nanomachines comprised only a trickle of matter, a few tons per second. Deep inside the hole, though, they'd measure the curvature around them—observing both starlight and signals from the nanomachines following behind—then modify their own collective mass distribution in such a way as to steer the hole's future geometry closer to the target. Every deviation from free-fall meant jettisoning molecular fragments and sacrificing chemical energy, but before they'd entirely ripped themselves apart they'd give birth to photonic machines tailored to do the same thing on a smaller scale.

It was impossible to know whether or not any of this was working as planned, but a map in the scape showed the desired result. Vikram sketched in two counter-rotating bundles of light rays. "We can't avoid having space collapsing in two directions and expanding in the third—unless we poured in so much matter that it collapsed in all three, which would be even worse. But it's possible to keep changing the direction of expansion, flipping it ninety degrees again and again, evening things out. That allows light to execute a series of complete orbits—each taking about one hundredth the time of the previous one—and it also means there are periods of contraction across the beams, which counteract the de-focusing effects of the periods of expansion."

The two bundles of rays oscillated between circular and elliptical cross-sections as the curvature stretched and squeezed them. Cordelia created a magnifying glass and followed them "in": forward in time, toward the singularity. She said, "If the orbital periods form a geometric series, there's no limit to the number of orbits you could fit in before the singularity. And the wavelength is blue-shifted in proportion to the size of the orbit, so diffraction effects never take over. So what's there to stop you doing infinite computation?"

Vikram replied cautiously, "For a start, once colliding photons start creating particle-antiparticle pairs, there'll be a range of energies for each species of particle when it will be traveling so much slower than light-

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speed that the pulses will begin to smear. We think we've shaped and spaced the pulses in such a way that all the data will survive, but it would only take one unknown massive particle to turn the whole stream into gibberish."

Cordelia looked up at him with a hopeful expression. "What if there are no unknown particles?"

Vikram shrugged. "In Kumar's model, time is quantized, so the frequency of the beams can't keep rising without limit. And most of the alternative theories also imply that the whole setup will fail eventually, for one reason or another. I only hope it fails slowly enough for us to understand *why*, before we're incapable of understanding anything." He laughed. "Don't look so mournful! It will be like . . . the death of one branch of a tree. And maybe we'll gain some knowledge for a while that we could never even glimpse, outside the hole."

"But you won't be able to do anything with it," Cordelia protested. "Or tell anyone."

"Ah, technology and fame." Vikram blew a raspberry. "Listen, if my Dive clone dies learning nothing, he'll still die happy, knowing that I continued outside. And if he learns everything I'm hoping he'll learn . . . he'll be too ecstatic to go on living." Vikram composed his face into a picture of exaggerated earnestness, deflating his own hyperbole, and Cordelia actually smiled. Gisela had been beginning to wonder if morbid grief over the fate of the Divers would be enough to put her off Cartan altogether.

Cordelia said, "What would make it worthwhile, then? What's the most you could hope for?"

Vikram sketched a Feynman diagram in the air between them. "If you take spacetime for granted, rotational symmetry plus quantum mechanics gives you a set of rules for dealing with a particle's spin. Penrose turned this inside out, and showed that the whole concept of 'the angle between two directions' can be created from scratch in a network of world lines, so long as they obey those spin rules. Suppose a system of particles with a certain total spin throws an electron to another system, and in the process the first system's spin decreases. If you knew the angle between the two spin vectors, you could calculate the probability that the second spin was increased rather than decreased . . . but if the concept of 'angle' doesn't even exist yet, you can work backward and *define it* from the probability you get by looking at all the networks for which the second spin is increased.

"Kumar and others extended this idea to cover more abstract symmetries. From a list of rules about what constitutes a valid network, and how to assign a phase to each one, we can now derive all known physics. But I want to know if there's a deeper explanation for those rules. Are spin and the other quantum numbers truly elementary, or are they the product of something more fundamental? And when networks reinforce

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or cancel each other according to the phase difference between them, is that something basic we just have to accept, or is there hidden machinery beneath the mathematics?"

Timon appeared in the scape, and drew Gisela aside. "I've committed a small infraction—and knowing you, you'll find out anyway. So this is a confession in the hope of leniency."

"What have you done?"

Timon regarded her nervously. "Prospero was rambling on about flesher culture as the route to all knowledge." He morphed into a perfect imitation, and replayed Prospero's voice: "'The key to astronomy lies in the study of the great Egyptian astrologers, and the heart of mathematics is revealed in the rituals of the Pythagorean mystics . . .'"

Gisela put her face in her hands; she would have been hard-pressed not to respond herself. "And you said—?"

"I told him that if he was ever embodied in a space suit, floating among the stars, he ought to try sneezing on the face plate to improve the view."

Gisela cracked up laughing. Timon asked hopefully, "Does that mean I'm forgiven?"

"No. How did he take it?"

"Hard to tell." Timon frowned. "I'm not sure that he's capable of grasping insults. It would require imagining that someone could believe that he's less than essential to the future of civilization."

Gisela said sternly, "Two more days. Try harder."

"Try harder yourself. It's your turn now."

"What?"

"Prospero wants to see you." Timon grinned with malicious pleasure. "Time to have your own *mythic essence* extracted."

Gisela glanced toward Cordelia; she was talking animatedly with Vikram. Athena, and Prospero, had suffocated her; it was only away from both that she came to life. The decision to migrate was hers alone, but Gisela would never forgive herself if she did anything to diminish the opportunity.

Timon said, "Be nice."

The Dive team had decided against any parting of the clones; their frozen snapshots would be incorporated into the blueprint for Cartan Null without ever being run outside Chandrasekhar. When Gisela had told Prospero this, he'd been appalled, but he'd cheered up almost immediately; it left him all the more room to invent some ritual farewell for the travelers, without being distracted by the truth.

The whole team did gather in the control scape, though, along with Prospero and Cordelia, and a few dozen friends. Gisela stood apart from the crowd as Vikram counted down to the deadline. On "ten," she instructed her exoself to clone her. On "nine," she sent the snapshot to the

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address being broadcast by an icon for the Cartan Null file—a stylized set of counter-rotating light beams—hovering in the middle of the scape. When the tag came back confirming the transaction, she felt a surge of loss; the Dive was no longer part of her own linear future, even if she thought of the clone as a component of her extended self.

Vikram shouted exuberantly, "Three! Two! One!" He picked up the Cartan Null icon and tossed it into a map of the spacetime around Chandrasekhar. This triggered a gamma-ray burst from the polis to a probe with an eight-M orbit; there, the data was coded into nanomachines designed to re-create it in active, photonic form—and those nanomachines joined the stream cascading into the hole.

On the map, the falling icon veered into a "motionless" vertical world line as it approached the two-M shell. Successive slices of constant time in the static frame outside the hole never crossed the horizon, they merely clung to it; by one definition, the nanomachines would take forever to enter Chandrasekhar.

By another definition, the Dive was over. In their own frame, the nanomachines would have taken less than one-and-a-half milliseconds to fall from the probe to the horizon, and not much longer to reach the point where Cartan Null was launched. And however much subjective time the Divers had experienced, however much computing had been done along the way, the entire region of space containing Cartan Null would have been crushed into the singularity a few microseconds later.

"If the Divers tunneled out of the hole, there'd be a paradox, wouldn't there?" Gisela turned; she hadn't noticed Cordelia behind her. "Whenever they emerged, they wouldn't have fallen in yet—so they could swoop down and grab the nanomachines, preventing their own births." The idea seemed to disturb her.

Gisela said, "Only if they tunneled out close to the horizon. If they appeared further away—say here in Cartan, right now—they'd already be too late. The nanomachines have had too much of a head start; the fact that they're almost standing still in our reference frame doesn't make them an easy target if you're actually chasing after them. Even at lightspeed, nothing could catch them from here."

Cordelia appeared to take heart from this. "So escape isn't impossible?"

"Well . . ." Gisela thought of listing some of the other hurdles, but then she began to wonder if the question was about something else entirely. "No. It's not impossible."

Cordelia gave her a conspiratorial smile. "Good."

Prospero cried out, "Gather round! Gather round now and hear *The Ballad of Cartan Null!*" He created a podium, rising beneath his feet. Timon sidled up to Gisela and whispered, "If this involves a lute, I'm sending my senses elsewhere."

It didn't; the blank verse was delivered without musical accompani-

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ment. The content, though, was even worse than Gisela had feared. Prospero had ignored everything she and the others had told him. In his version of events, "Charon's passengers" entered "gravity's abyss" for reasons he'd invented out of thin air: to escape, respectively, a failed romance/vengeance for an unspeakable crime/the ennui of longevity; to resurrect a lost flesher ancestor; to seek contact with "the gods." The universal questions the Divers had actually hoped to answer—the structure of spacetime at the Planck scale, the underpinnings of quantum mechanics—didn't rate a mention.

Gisela glanced at Timon, but he seemed to be taking the news that his sole version had just fled into Chandrasekhar to avoid punishment for an unnamed atrocity extremely well; there was disbelief on his face, but no anger. He said softly, "This man lives in Hell. Mucous on the face plate is all he'll ever see."

The audience stood in silence as Prospero began to "describe" the Dive itself. Timon stared at the floor with a bemused smile. Tiet wore an expression of detached boredom. Vikram kept peeking at a display behind him, to see if the faint gravitational radiation emitted by the inflowing nanomachines was still conforming to his predictions.

It was Sachio who finally lost control and interjected angrily, "Cartan Null is some ghostly image of a scape, full of ghostly icons, floating through the vacuum, down into the hole?"

Prospero seemed more startled than outraged by the interruption. "It is a city of light. Translucent, ethereal . . ."

The owl in Sachio's skull puffed its feathers out. "No photon state would look like that. What you describe could never exist, and even if it could it would never be conscious." Sachio had worked for decades on the problem of giving Cartan Null the freedom to process data without disrupting the geometry around it.

Prospero spread his arms in a conciliatory gesture. "An archetypal quest narrative must be kept simple. To burden it with *technicalities*—"

Sachio inclined his head briefly, fingertips to forehead, downloading information from the polis library. "Do you have any idea what archetypal narratives *are?*"

"Messages from the gods, or from the depths of the soul; who can say? But they encode the most profound and mysterious—"

Sachio cut him off impatiently. "They're the product of a few chance attractors in flesher neurophysiology. Whenever a more complex or subtle story was disseminated through an oral culture, it would eventually degenerate into an archetypal narrative. Once writing was invented, they were only ever created deliberately by fleshers who failed to understand what they were. If all of antiquity's greatest statues had been dropped into a glacier, they would have been reduced to a predictable spectrum of spheroidal pebbles by now; that does not make the spheroidal pebble the

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pinnacle of the artform. What you've created is not only devoid of truth, it's devoid of aesthetic merit."

Prospero was stunned. He looked around the room expectantly, as if waiting for someone to speak up in defense of the *Ballad*.

No one made a sound.

This was it: the end of diplomacy. Gisela spoke privately to Cordelia, whispering urgently: "Stay in Cartan! No one can force you to leave!"

Cordelia turned to her with an expression of open astonishment. "But I thought—" She fell silent, reassessing something, hiding her surprise.

Then she said, "I can't stay."

"*Why not?* What is there to stop you? You can't stay buried in Athena—" Gisela caught herself; whatever bizarre hold the place had on her, disparaging it wouldn't help.

Prospero was muttering in disbelief now, "Ingratitude! Base ingratitude!" Cordelia regarded him with forlorn affection. "He's not ready." She faced Gisela, and spoke plainly. "Athena won't last forever. Polises like that form and decay; there are too many real possibilities for people to cling to one arbitrary sanctified culture, century after century. But he's not prepared for the transition; he doesn't even realize it's coming. I can't abandon him to that. He's going to need someone to help him through." She smiled suddenly, mischievously. "But I've cut two centuries off the waiting time. If nothing else, the trip did that."

Gisela was speechless for a moment, shamed by the strength of this child's love. Then she sent Cordelia a stream of tags. "These are references to the best libraries on Earth. You'll get the real stuff there, not some watered-down version of flesher physics."

Prospero was shrinking the podium, descending to ground level. "Cordelia! Come to me now. We're leaving these barbarians to the obscurity they deserve!"

For all that she admired Cordelia's loyalty, Gisela was still saddened by her choice. She said numbly, "You belong in Cartan. It should have been possible. We should have been able to find a way."

Cordelia shook her head: no failure, no regrets. "Don't worry about me. I've survived Athena so far; I think I can see it through to the end. Everything you've shown me, everything I've done here, will help." She squeezed Gisela's hand. "Thank you."

She joined her father. Prospero created a doorway, opening up onto a yellow brick road through the stars. He stepped through, and Cordelia followed him.

Vikram turned away from the gravitational wave trace and asked mildly, "All right, you can own up now: who threw in the additional exabyte?"

"*Freeeeee-dom!*" Cordelia bounded across Cartan Null's control scape,

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a long platform floating in a tunnel of color-coded Feynman diagrams, streaming through the darkness like the trails of a billion colliding and disintegrating sparks.

Gisela's first instinct was to corner her and shout in her face: *Kill yourself now! End this now!* A brief side-branch, cut short before there was time for personality divergence, hardly counted as a real life and a real death. It would be a forgotten dream, nothing more.

That analysis didn't hold up, though. From the instant she'd become conscious, this Cordelia had been an entirely separate person: the one who'd left Athena forever, the one who'd escaped. Her extended self had invested far too much in this clone to treat it as a mistake and cut its losses. Beyond anything it hoped for itself, the clone knew exactly what its existence meant for the original. To betray that, even if it could never be found out, would be unthinkable.

Tiet said sharply, "You didn't raise her hopes, did you?"

Gisela thought back over their conversations. "I don't think so. She must know there's almost no chance of survival."

Vikram looked troubled. "I might have put our own case too strongly. She might believe the same discoveries will be enough for her—but I'm not sure they will."

Timon sighed impatiently. "She's here. That's irreversible; there's no point agonizing about it. All we can do is give her the chance to make what she can of the experience."

A horrifying thought struck Gisela. "The extra data hasn't overburdened us, has it? Ruled out access to the full computational domain?" Cordelia had compressed herself down to a far leaner program than the version she'd sent from Earth, but it was still an unexpected load.

Sachio made a sound of indignation. "How badly do you think I did my job? I knew someone would bring in more than they'd promised; I left a hundredfold safety margin. One stowaway changes nothing."

Timon touched Gisela's arm. "Look." Cordelia had finally slowed down enough to start examining her surroundings. The primary beams, the infrastructure for all their computation, had already been blue-shifted to hard gamma rays, and the colliding photons were creating pairs of relativistic electrons and positrons. In addition, a range of experimental beams with shorter wavelengths probed the physics of length scales ten thousand times smaller—physics that would apply to the primary beams about a subjective hour later. Cordelia found the window with the main results from these beams. She turned and called out, "Lots of mesons full of top and bottom quarks ahead, but nothing unexpected!"

"Good!" Gisela felt the knot of guilt and anxiety inside her begin to unwind. Cordelia had chosen the Dive freely, just like the rest of them. The fact that it had been a hard decision for her to make was no reason to assume that she'd regret it.

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Timon said, "Well, you were right. I was wrong. She certainly tunneled out of Athena."

"Yeah. So much for your theory of closed trapped memetic surfaces." Gisela laughed. "Pity it was just a metaphor, though."

"Why? I thought you'd be overjoyed that she made it."

"I am. It's just a shame that it says nothing at all about our own chances of escape."

Each orbit gave them thirty minutes of subjective time, while the true length and time scales of Cartan Null shrank a hundredfold. Sachio and Tiet scrutinized the functioning of the polis, checking and rechecking the integrity of the "hardware" as new species of particles entered the pulse trains. Timon reviewed various methods for shunting information into new modes, if the opportunity arose. Gisela struggled to bring Cordelia up to speed, and Vikram, whose main work had been the nanomachines, helped her.

The shortest-wavelength beams were still recapitulating the results of old particle accelerator experiments; the three of them pored over the data together. Gisela summarized as best she could. "Charge and the other quantum numbers generate a kind of angle between world lines in the networks, just like spin does, but in this case they act like angles in five-dimensional space. At low energies what you see are three separate subspaces, for electromagnetism and the weak and strong forces."

"Why?"

"An accident in the early universe with Higgs bosons. Let me draw a picture . . ."

There was no time to go into all the subtleties of particle physics, but many of the issues that were crucial outside Chandrasekhar were becoming academic for Cartan Null anyway. Broken symmetries were being restored as they spoke, with increasing kinetic energy diluting differences in rest mass into insignificance. The polis was rapidly mutating into a hybrid of every possible particle type; what governed their future would not be the theory of any one force, but the nature of quantum mechanics itself.

"What lies behind the frequency and wavelength of a particle?" Vikram sketched a snapshot of a wave packet on a spacetime diagram. "In its own reference frame, an electron's phase rotates at a constant rate: about once every ten-to-the-minus-twenty seconds. If it's moving, we see that rate slowed down by time dilation, but that's not the whole picture." He drew a set of components fanning out at different velocities from a single point on the wave, then marked off successive points where the phase came full circle for each one. The locus of these points formed a set of hyperbolic wavefronts in spacetime, like a stack of conical bowls—packed more tightly, in both time and space, where the components' velocity was

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greater. "The spacing of the original wave is only reproduced by components with just the right velocity; they trace out identical copies of the wave at later times, all neatly superimposed. Components with the wrong velocity scramble the phase, so their copies all cancel out." He repeated the entire construction for a hundred points along the wave, and it propagated neatly into the future. "In curved spacetime, the whole process becomes distorted—but given the right symmetries, the *shape* of the wave can be preserved while the wavelength shrinks and the frequency rises." Vikram warped the diagram to demonstrate. "Our own situation."

Cordelia took this all in, scribbling calculations, cross-checking everything to her own satisfaction. "Okay. So why does that have to break down? Why can't we just keep being blue-shifted?"

Vikram zoomed in on the diagram. "All phase shifts ultimately come from *interactions*—intersections of one world line with another. In the Kumar model, every network of world lines has a finite weave. At each intersection, there's a tiny phase shift that makes time jump by about ten-to-the-minus-forty-three seconds . . . and it's meaningless to talk about either a smaller phase shift, or a shorter time scale. So if you try to blue-shift a wave indefinitely, eventually you reach a point where the whole system no longer has the resolution to keep reproducing it." As the wave packet spiraled in, it began to take on a smeared, jagged approximation of its former shape. Then it disintegrated into unrecognizable noise.

Cordelia examined the diagram carefully, tracing individual components through the final stages of the process. Finally she said, "How long before we see evidence of this? Assuming the model's correct?"

Vikram didn't reply; he seemed to be having second thoughts about the wisdom of the whole demonstration. Gisela said, "In about two hours we should be able to detect quantized phase in the experimental beams. And then we'll have another hour or so before—" Vikram glanced meaningfully at her—privately, but Cordelia must have guessed why the sentence trailed off, because she turned on him.

"What do you think I'm going to do?" she demanded indignantly. "Collapse into hysterics at the first glimmering of mortality?"

Vikram looked stung. Gisela said, "Be fair. We've only known you three days. We don't know what to expect."

"No." Cordelia gazed up at the stylized image of the beam that encoded them, swarming now with everything from photons to the heaviest mesons. "But I'm not going to ruin the Dive for you. If I'd wanted to brood about death, I would have stayed home and read bad flesher poetry." She smiled. "Baudelaire can screw himself. I'm here for the physics."

Everyone gathered round a single window as the moment of truth for

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the Kumar model approached. The data it displayed came from what was essentially a two-slit interference experiment, complicated by the need to perform it without anything resembling solid matter. A sinusoidal pattern showed the numbers of particles detected across a region where an electron beam recombined with itself after traveling two different paths; since there were only a finite number of detection sites, and each count had to be an integer, the pattern was already "quantized," but the analysis software took this into account, and the numbers were large enough for the image to appear smooth. At a certain wavelength, any genuine Planck scale effects would rise above these artifacts, and once they appeared they'd only grow stronger.

The software said, "Found something!" and zoomed in to show a slight staircasing of the curve. At first it was so subtle that Gisela had to take the program's word that it wasn't merely showing them the usual, unavoidable jagging. Then the tiny steps visibly broadened, from two horizontal pixels to three. Sets of three adjacent detection sites, which moments ago had been registering different particle counts, were now returning identical results. The whole apparatus had shrunk to the point where the electrons couldn't tell that the path lengths involved were different.

Gisela felt a rush of pure delight, then an aftertaste of fear. They were reaching down to brush their fingertips across the weave of the vacuum. It was a triumph that they'd survived this far, but their descent was almost certainly unstoppable.

The steps grew wider; the image zoomed out to show more of the curve. Vikram and Tiet cried out simultaneously, a moment before the analysis software satisfied itself with rigorous statistical tests. Vikram repeated softly, "That's wrong." Tiet nodded, and spoke to the software. "Show us a single wave's phase structure." The display changed to a linear staircase. It was impossible to measure the changing phase of a single wave directly, but assuming that the two versions of the beam were undergoing identical changes, this was the progression implied by the interference pattern.

Tiet said, "This is *not* in agreement with the Kumar model. The phase is quantized, but the steps aren't equal—or even random, like the Santini model. They're structured across the wave, in cycles. Narrower, broader, narrower again . . ."

Silence descended. Gisela gazed at the pattern and struggled to concentrate, elated that they'd found something unexpected, terrified that they might fail to make sense of it. Why wouldn't the phase shift come in equal units? This cyclic pattern was a violation of symmetry, allowing you to pick the phase with the smallest quantum step as a kind of fixed reference point—an idea that quantum mechanics had always declared to be as meaningless as singling out one direction in empty space.

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But the rotational symmetry of space wasn't perfect: in small enough networks, the usual guarantee that all directions would look the same no longer held up. *Was that the answer?* The angles the two beams had to take to reach the detector were themselves quantized, and that effect was superimposed on the phase?

No. The scale was all wrong. The experiment was still taking place over too large a region.

Vikram shouted with joy, and did a backward somersault. "There are world lines crossing *between the nets!* That's what creates phase!" Without another word, he began furiously sketching diagrams in the air, launching software, running simulations. Within minutes, he was almost hidden behind displays and gadgets.

One window showed a simulation of the interference pattern, a perfect fit to the data. Gisela felt a stab of jealousy: she'd been so close, she should have been first. Then she began to examine more of the results, and the feeling evaporated. This was elegant, this was beautiful, this was right. It didn't matter who'd discovered it.

Cordelia was looking dazed, left behind. Vikram ducked out from the clutter he'd created, leaving the rest of them to try to make sense of it. He took Cordelia's hands and they waltzed across the scape together. "The central mystery of quantum mechanics has always been: why can't you just *count* the ways things can happen? Why do you have to assign each alternative a phase, so they can cancel as well as reinforce each other? We knew the rules for doing it, we knew the consequences—but we had no idea what phases were, or where they came from." He stopped dancing, and conjured up a stack of Feynman diagrams, five alternatives for the same process, layered one on top of the other. "They're created the same way as every other relationship: common links to a larger network." He added a few hundred virtual particles, crisscrossing between the once-separate diagrams. "It's like spin. If the networks have created directions in space that make two particles' spins parallel, when they combine they'll simply add together. If they're anti-parallel, in opposing directions, they'll cancel. Phase is the same, but it acts like an angle in two dimensions, and it works with every quantum number together: spin, charge, color, everything—if two components are perfectly out-of-phase, they vanish completely."

Gisela watched as Cordelia reached into the layered diagram, followed the paths of two components, and began to understand. They hadn't discovered any deeper structure to the individual quantum numbers, as they'd hoped they might, but they'd learnt that a single vast network of world lines could account for everything the universe built from those indivisible threads.

Was this enough for her? Her original, struggling for sanity back in Athena, might take comfort from the hope that the Dive clone had wit-

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nessed a breakthrough like this—but as death approached, would it all turn to ashes for the witness? Gisela felt a pang of doubt herself, though she'd talked it through with Timon and the others for centuries. Did everything she felt at this moment lose all meaning, just because there was no chance to carry the experience back to the wider world? She couldn't deny that it would have been better to know that she could reconnect with her other selves, tell all her distant family and friends what she'd learnt, follow through the implications for millennia.

But the whole universe faced the same fate. Time *was* quantized; there was no prospect of infinite computation before the Big Crunch, for anyone. If everything that ended was void, the Dive had merely spared them the prolonged false hope of immortality. If every moment stood alone, complete in itself, then nothing could rob them of their happiness.

The truth, of course, lay somewhere in between.

Timon approached her, grinning with delight. "What are you pondering here by yourself?"

She took his hand. "Small networks."

Cordelia said to Vikram, "Now that you know precisely what phase is, and how it determines probabilities . . . is there any way we could use the experimental beams to manipulate the probabilities for the geometry ahead of us? Twist back the light cones just enough to keep us skirting the Planck region? Spiral back up around the singularity for a few billion years, until the Big Crunch comes, or the hole evaporates from Hawking radiation?"

Vikram looked stunned for a moment, then he began launching software. Sachio and Tiet came and helped him, searching for computational shortcuts. Gisela looked on, light-headed, hardly daring to hope. To examine every possibility might take more time than they had, but then Tiet found a way to test whole classes of networks in a single calculation, and the process sped up a thousandfold.

Vikram announced the result sadly. "No. It's not possible."

Cordelia smiled. "That's all right. I was just curious." ●

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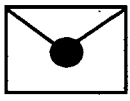

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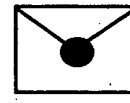

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ON BOOKS

Paul Di Filippo

Peering Over the Futurists' Shoulders

Freeman Dyson is one of us. Forget for a moment that he's a world-famous physicist, his name bestowed on such famous concepts as the Dyson Sphere. Underneath all the accolades and brilliance, he's really nothing more than a humble SF fan. And I have the admission right here in print, in his fascinating new volume of lectures, *Imagined Worlds* (Harvard University Press, hardcover, $22.00, 216 pages). In his introduction, Dyson tells the reader, "Science is my territory, but science fiction is the landscape of my dreams." Later on, in the section titled "Technology," he says, "To understand technology as it is seen by people outside the technological elite, I have found science fiction more illuminating than science. . . . Science fiction shows us the human output."

This intersection of society and science is what concerns Dyson in this latest book. In his colloquial yet polished prose, he charts the Darwinian evolution of airships and reactors, digital astronomy and the Gaia theory. With an emphasis on biology—"the dominant science of the twenty-first century"—Dyson sheds light on the paths that lie ahead by close attention to the past. Focusing on social justice and the role science plays in alleviating or worsening the burdens of living, Dyson holds our feet to the fire of our own choices. "In the long run, the central problem of any intelligent species is the problem of sanity. We shall be free to choose our values and purposes. There will be no absolute standards. . . ." Like his hero H.G. Wells, Dyson is a clearheaded voice of reason amidst the Jeremiahs and Pollyannas.

Pamela McCorduck and Nancy Ramsey, in their *The Futures of Women* (Warner, trade, $14.99, 288 pages), work on a different plane from Dyson. Whereas the latter favors the high view that reveals big patterns, the female futurists choose to keep their ultrasensitive noses close to the ground, elucidating major waves of change from an infinity of small details.

This book arises from a project overseen by the Global Business Network. Through a series of online and in-person interviews, focus groups and old-fashioned research (their methodology is given in the preface), the authors built up four basic scenarios for "the future of women." These futures represent four quadrants on a Cartesian graph whose axes are rising and falling cultural and economic condi-

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tions. And although the focus is on the plight and potentials of women, these hypnotic forecasts really cover immense territory relevant to every inhabitant of the globe.

First comes the dystopia, "Backlash." Next, the utopia, "A Golden Age of Equality." A pair of in-between futures are "Separate—and Doing Fine, Thanks!" and "Two Steps Forward, Two Steps Back." In bite-sized chunks, utilizing some imaginary biographies, the authors lay out the clear-as-crystal blueprints of how each future is reached and what it contains. While each of these scenarios has probably been given play in various works of SF—"Backlash," for instance, resembles John Shirley's *A Song of Youth* trilogy—McCorduck and Ramsey provide the essential nitty-gritty statistics and circumstances and logic that underpin each future.

Not since Stableford and Langford's *The Third Millennium* (1985) have we seen such a brave factual extrapolation. *The Futures of Women* should be required reading for both fans and writers of SF.

Retrospectives

Was Guy de Maupassant the first truly modern horror writer? As a protégé of Flaubert, he certainly got training from a master of modernism—training that did not fall on barren ground. De Maupassant's own native talents—combined with painstaking methods of composition and a tormented imagination that eventually led to his own asylum-shrouded death—produced over three hundred stories that rank among the finest of the past hundred years. Now, editor and talented translator Arnold Kellett has assembled the thematically horrific ones into a single compulsively readable volume: *The Dark Side* (Carroll and Graf, trade, $10.95, 252 pages). Purchase of this book is highly recommended.

De Maupassant's exquisitely brutal naturalism, his eye for the telling detail amidst the confusion, are complemented by his deep personal understanding of the crueler delusions that humanity is prey to. In story after story, protagonists succumb to metaphysical heebie-jeebies when confronted with the existential loneliness of the human condition. The innocents suffer for the acts of the guilty; hypocrisy is uncovered but goes unpunished; society offers no refuge for the tormented. De Maupassant's unsparing treatment of French peasants points forward to Faulkner's dissection of similar countryfolk. His tales set in North Africa foreshadow Paul Bowles. His climactic revelations and reversals paved the way for O. Henry. And his portraits of loners with oversensitive perceptions point toward Kafka. In stories such as "The Diary of a Madman" and "The Case of Louise Roque" de Maupassant even anticipated the serial-killer genre. Today, these tales resonate even more deeply than in Victorian times, offering us a cold hand in the dark.

Pity the talented author who is almost too fluent for his own good.

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Chameleon-like, he can reproduce whatever background he momentarily rests on. Consequently, readers tend to mistake him for a leaf or a twig or a patch of sand, neglecting to discern his true essence, which consists of empathy and enthusiasm, a keen eye and ear, and verbal fluidity.

Such is a partial, perhaps overly gloomy description of the erratic career of Richard Lupoff. Steeped in fantastic literature from youth, rising through fandom and into the ranks of the professional, Lupoff has consistently produced entertaining stories that are all demonstrably and uniquely his own. Yet because many of them have been parodies, homages, and pastiches, he has eluded critics and readers searching for easily packaged brand names. Perhaps this plight will be remedied by the appearance of *Before . . . 12:01 . . . and After* (Fedogan and Bremer, hardcover, $27.00, 374 pages), a lush and sweeping compilation that includes a sampling of everything Lupoff does so well, from mysteries to ghost stories, pure SF to the above-mentioned takeoffs. A superb cover and interior illos by George Barr, an introduction by Silverberg, and charmingly rueful prefaces by Lupoff himself are the frosting on this literary cake too long delayed.

We are now presented with the third volume in the ongoing project to publish all of Theodore Sturgeon's short fiction: *Killdozer!* (North Atlantic Books, hardcover, $25.00, 367 pages). As with previous entries, there is a mix of fantasy, SF, horror, and mainstream—including four never-before-published tales—all bearing the inimitable Sturgeon stamp and buttressed with Paul Williams's astute biographical notes. Standout entries are the title piece, "Abreaction," "The Chromium Helmet," and "Mewhu's Jet." Reading these volumes is as fascinating as watching an accelerated movie of plant growth, as the efforts of years are compressed between two covers.

During the mid-seventies, Sturgeon came to speak at my college. Afterward, there was a mixer. I approached the man and said, "Are you glad that *Some of Your Blood* is back in print?" If I could reproduce the weary smile that lit up his worn face, I would do so. Then you would all surely rush out and buy this book.

From all accounts, C.M. Kornbluth burned through his short life like a 1000-watt halogen bulb. The fiction he left behind for our grateful enjoyment reveals all his genius and wit. This prodigy possessed a mordant sensibility and erudite vocabulary akin to S.J. Perelman's; was cosmopolitan and socioculturally online, politically savvy and spiritually sensitive. And the man could plot like the devil himself.

Now, thanks to the noble efforts of editor Timothy Szczesuil and the folks at NESFA Press, all of us can revel in a volume of Kornbluth's complete short solo fiction: *His Share of Glory* (hardcover, $27.00, 670 pages). What an in-

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valuable trove this is, full of forty- and fifty-year-old stories that read as fresh as any today. And the range! Kornbluth could do Retief better than Laumer ("The Reversible Revolutions" and "The City in the Sofa"). He could sound like Bruce Sterling ("Shark Ship") or Lem ("The Perfect Invasion") or the 1962-era Dick of *The Man in the High Castle* ("Two Dooms"). He wrote *Unknown Worlds* fantasies as splendidly as deCamp and Pratt ("The Golden Road" and "Kazam Collects"). And of course for pure Swiftian satire, he led the parade of Marching Morons right over the edge of the cliff.

Kornbluth saw so clearly it hurt. To ease the hurt, he chose laughter. As in his ironically prophetic tale "Gomez," where a brilliant math whiz dies at age thirty-nine, we would like to say, "He died not too unhappy, after a good though short life with much satisfaction—"

On The Line

There is a poster by Robert Crumb that remarkably manages to tell wordlessly the whole sad and glorious manic history of America's development in eight or twelve panels, entirely by the simple depiction of a small plot of land changing thorough time. The first panel presents a sylvan pre-Columbian forest. In the next, European settlers have arrived and built a single cabin. In the third, more cabins. By the fourth, a primitive town. And so on, through the advent of steam and electricity, until the last panel limns the familiarly unnoticed urban sprawl we inhabit today. The whole effect is heartbreaking and laughter-provoking, rueful and yet somehow exultant at the insane fertility and ingenuity of the citizens of "the last best hope of mankind, that shining city on the hill."

Thomas Pynchon—like his spiritual cousin Crumb, a mixed-media master of both high and low culture—has been exploring for over thirty-five years that very same theme: the ultimately entropic yet temporarily vigorous effusions of the USA, a country unlike any before it. Pynchon's ultimate topic—despite or beneath his elaborately recomplicated and beautifully scary patterns of conspiracies, Gnostic failures and affirmations of faith, scientific paradigms in action, paranoia, and the like—is simply the character of life in contemporary America and a world dominated by America. In *V.* (1963), he dissected Victorian times, as well as our own fifties and early sixties. In *The Crying of Lot 49* (1966), he focused on the burgeoning cybernetic Swinging Scene. *Gravity's Rainbow* (1973) journeyed back to the forties, but also purposefully foretold the death of Hippiedom and Liberalism. *Vineland* (1990) brought the portrait right up to the present. So where was Pynchon to turn next?

Why, how about those earlier panels in the Crumb poster, as yet unsurveyed?

Mason & Dixon (Henry Holt, hardcover, $27.50, 773 pages) is—in the most reductionistic light—Pynchon's steampunk novel. Or

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rather, since the book occupies that part of the early eighteenth century before steam was a practical technology, call it "horsepower-punk." *Or*, given its main subject matter of astronomy and surveying, "sextant-punk" might be another choice. All silly nomenclature aside, however, this book is simultaneously head-and-shoulders above any previous volume of warped history-seen-through-modern-eyes, and at the same time plainly and proudly a member of this limited subgenre. Its accessibility and fluid prose—a blend of historicity and anachronism—makes it the perfect volume for anyone who enjoyed, say, Tim Powers's *The Anubis Gates* (1983). And yet its depths and density will sustain future rereadings (and academic nitpickings!) in a way that the Powers will not.

At the heart of the book are the historical Charles Mason and Jeremiah Dixon, their conquests and failures, their fallings-out and eventual fast-bonding friendship. Pynchon explicitly evokes many a buddy-buddy pairing in this book, including Laurel and Hardy and Crosby and Hope, but the one that rings truest to me is that of Neal Cassady and Jack Kerouac.

Pynchon, as he has told us essayistically, was deeply influenced as a college student by the advent of the Beats, whose spirit he went on to honor in all his books. In this one, the melancholic, celibate, wine-drinking, ghost-obsessed Mason is clearly a Kerouackian figure, just as the carefree, wenching, beer-drinking, future-looking Dixon is the Holy Goof Neal. Together, on the colonial road, they form a yin-yang combination mostly equal to the various challenges that come with trying to blaze a straight bleeding edge across a boisterous colonial America filled with marvels and dangers, contending factions and obstreperous sociopaths, slavery and unprecedented freedoms.

This is perhaps the funniest and surely the most literally fantastic of Pynchon's books, replete with talking dogs and sentient clocks, Jesuit telegraphs, giant vegetables, ley-lines that power human flight, ghosts, feng shui, were-beavers and were-fops, golems and witches, mechanical ducks and eleven-day holes in the fabric of time. Paradoxically, this era is billed as "The Age of Reason," an arrogant assertion Pynchon undercuts at every chance. In his view, bravado, laughter, an open mind, and a good heart are of infinitely more value than ratiocination and logic. Despite the scientific precision demanded by Mason's and Dixon's specialties of astronomy and surveying, both men are empathetic, emotional and nonjudgmental, taking miracles and insanities in stride.

Pynchon's major prose stylings have always concerned and replicated the elision of time: past, present, and future flow into and out of one another. Within paragraphs, action can jump smoothly and mysteriously forward or back in time. Because this narrative is

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framed as the recitation of one Reverend Wicks Cherrycoke in the winter of 1786, the disjunctions are even greater, as Cherrycoke's "present-day" listeners interrupt and comment on the Reverend's remembrances of his friends Mason and Dixon. Exactly how much of this fable actually happened and how much derives from Cherrycoke's imagination and preoccupations is yet another layer of mystery here.

Like the classic tales of Paul Bunyan or Mike Fink, *Mason & Dixon* is an ebullient and shaggy episodic romp involving larger-than-life mortals tinged with supernal force. Like *Gravity's Rainbow*, it is a gradual unfolding of the inner workings of the universe and of human history, the partial disclosure of the string-pullers behind the backdrops. Like *On the Road* (1957), it is a story of character forged in the flames of worldly experience. And finally, it is an alternately sentimental and cynical depiction of our American roots.

Midway through the book comes this thought: "Does Britannia, when she sleeps, dream? Is America her dream?"

Quite possibly. But I rather think that we are, in all our fallible glory, Thomas Pynchon's dream.

A footnote: Pynchon fans will surely relish the publication of *Lineland* (IAM, trade paper, $11.95, 164 pages), by Jules Siegel, Christine Wexler, et al. Siegel and Wexler were personal friends with Pynchon during the sixties, and this book consists of illuminating reminiscences on the writer and his work, as well as replicating the on-line discussions contingent thereon. Write to the publisher at 828 Ormand Avenue, Drexel Hill, PA 19026, or info@iam.com.

The Eight-Million-Year Family

Piers Anthony once wrote one of the most inventively dirty SF stories I've ever read. Titled "The Bridge," it can be found in his collection *Anthonology* (1985). I mention it in connection with a review of his new series only to remind you that Mr. Anthony has more than a single arrow labeled "Xanth" in his quiver.

His new project wears the collective title of *Geodyssey*, a recapitulation and dramatization of the entire history of humanity. Buttressed with small chapter-bracketing essays in which Anthony fluently details his research, this project harks back to many an encyclopediac venture: the non-fiction summaries of Wells and the Durants, and the extrapolations of Stapledon, just to name a couple. And although the books are being marketed as similar to Auel's *Cave Bear* romances, only about half of each volume takes place in prehistoric times, the rest of the text concerning itself with periods well within the domain of written recordkeeping.

Isle of Woman (1993)—whose title alludes to a hypothetical semi-aquatic environment influential on mankind's evolution—set the pattern for the volumes to come. Characters introduced in one era

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as wearing the dominant somatype of the time would recur in each succeeding chapter, basic personalities intact even though they had been translated into different bodies. This ingenious Haggardesque continuity allowed Anthony to have a running story linking all the different periods and places of his tale. Specifically, it was the story of Ember and Blaze, kindred spirits separated at the beginning of time, who get to reunite only at the end of the volume. With the help of slightly less than ideal mates, Blaze and Ember breed up two extensive clans whose experiences exemplify the various stages of humanity's development.

The second volume was *Shame of Man* (1994), and here Anthony chose to reprise with variations almost the same story as in *Isle*. There were some valid and illuminating differences, however. First, the viewpoint characters, Hugh and Anne, remained united throughout the eons. Second, these two were artists, a musician and a dancer, and reflected a more contemplative angle of vision. Third, whereas love was the motivating force in *Isle*, in *Shame* it proved to be hate, as Hugh and Anne were pursued through time by the vengeful and greedy brother-sister team of Bub and Sis. With the addition of different locales and new research, *Shame* proved a not disposable successor.

Latest in the open-ended series is *Hope of Earth* (Tor, hardcover, $24.95, 416 pages), which provides incidental roles for many of the earlier characters. The main focus, however, is on six new protagonists, unrelated through blood, whom chance throws together throughout many millennia. Their ability to bond and care for each other seems to represent the "hope" of the title, a potential within mankind to overcome sectarian strife. Besides this change, Anthony—in the manner of a physicist conducting thought experiments—discards previous anthropological theories and tries out new ones. Additionally, previously uncharted venues such as Siberia come under his lens.

Anthony's speculative anthropology is the only real SF element in this simultaneously entertaining and educational project. (A minor fantasy element concerns the clairvoyant powers of a girl named Mina.) His historical scenes lack even this speculative dimension, but by the time they occur, the reader is already swept up in the fates of the time-jumping actors.

Granted that the globe is a big place and that time is long, I wonder for how many more volumes this series can be extended. Already, a certain small repetitiveness has inevitably crept in, as certain discoveries—flint-shaping, fire-making, etc.—are rehashed from book to book. Still, the indefatigable Anthony will probably continue to provide at least a few new insights into humanity's dark attics.

Interstellar Breakdowns

It would be most instructive for anyone to read back-to-back two

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recent novels: Jack Williamson's *The Black Sun* (Tor, hardcover, $23.95, 352 pages) and *Alpha Centauri* (Avon, hardcover, $23.00, 438 pages), by William Barton and Michael Capobianco. Both books concern one-way fledgling interstellar missions launched by a desperate Earth, missions that arrive at their destinations only to find the remains of a seemingly long-dead alien race. In both books, the social (and antisocial) interactions among the crewmembers assume an importance fully equal to the mystery of the aliens, and both books proclaim that mankind's survival demands a kind of John Carter-of-Mars indomitability. And yet, given the vast gap in age and sensibilities between Williamson and the team of Barton and Capobianco, the two books could not be more different. As an illustration of how basic SF themes are transmogrified from one generation to another, this pairing is a textbook case.

I shall not speak of the Williamson further, having already reviewed it elsewhere. Let's look instead at *Alpha Centauri*.

In the twenty-third century our extensively inhabited solar system is a hundred years or so short of reaching its human carrying capacity and experiencing a subsequent collapse, so successful has ingenious *homo faber* been. A private group, the Daiseijin, begins to send out several slower-than-light probes to nearby star systems, hoping to find one suitable for its use as an exclusive refuge. Our focus is the ship *Mother Night* after it arrives at the star of the title with its crew of affinity-mated explorers in stasis. First to awaken is the androgynous Kai, ship's engineer and lover of Captain Ginny. He will be our main viewpoint character amidst the staccato prose, jumping perspectives, and flashbacks employed by Barton and Capobianco, and a nicely deep rendering he/she is.

The second most vivid character aboard the ship just so happens to be a construct and a spy. (Synchronistically, Paul McAuley conjured up an almost identical personality in his story "Second Skin" in this magazine for April 1997.) Mies Cochrane, planetologist, is an artificial mindmeld bent on seduction, housed in a body that bears sterility-inducing sperm cells. One of many such terrorists intent on drastically pruning mankind's numbers through contagious sterility, he has been planted on the *Mother Night* to make sure that humanity's irresponsible breeding does not extend to foreign stars.

Fully half of Barton and Capobianco's total wordage is devoted to the sociosexual havoc caused by Mies and his depredations. As to be expected based on Barton's track record (I'm less familiar with Capobianco's solo work), the sex is copious, detailed, and realistic, an integral part of the story. No less rigorous (if you'll excuse the word) are the speculative elements. The twenty-third century is not one but two paradigm shifts away from

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our own, and its citizens have a *weltanshauung* utterly different than our own. As they reconstruct the ecology and culture of the vanished aliens, they learn lessons that will prove crucial for humanity's own future.

I would like to suggest that this book owes as much to Barry Malzberg as it does to, say, Greg Bear. Without Malzberg's pioneering work in humanizing astronauts, insisting on their portrayal as sexual beings, Barton and Capobianco could never have presented us with such a well-rounded tale.

Birdalone

There is a set of writers, mostly British, who share a certain heightened prose style, despite their varying thematic concerns. These men have an ability to render the everyday world in such vivid and startling terms that once-common landscapes and events and people acquire a patina of otherness. Poetic yet colloquial, profligate with metaphors, they seem to view the world through keen-seeing drug-saturated or alien eyes. Of course I'm talking of Ballard most prominently here. But other members of this demimonde are Richard Calder, Christopher Priest, Keith Roberts, and Brian Aldiss. Occasionally William Gibson sounds this note, as does Lisa Tuttle, proving it's not a mode denied to Americans and women.

One name naturally at home amongst these, a name that should be better known, is that of M. John Harrison. If the average reader is aware of this gifted writer's work, it is for his Viriconium books, decadence-delighting, futuristic, sword-and-sorcery deconstructions. Now comes a new novel set in our very near future that reads like a cross between Kathe Koja's *Kink* (1996) and Alex Cox's film *Repo Man* (1984). Its immaculate prose goes down fast and smooth, but it's only when you try to pull out the monofilament storyline that you realize it's been barbed along its whole length.

Signs of Life (St. Martin's, hardcover, $21.95, 256 pages) is narrated in the first person by one Mick "China" Rose, a sensitive fiftyish freelance ad-man whose own existence shows few signs of anything resembling vital life. Two things open up Rose's perspectives: falling in love with the fey Isobel Avens; and setting up business with the manic Choe Ashton, an anarchic figure straight out of J.P. Donleavy. The quasi-legal courier enterprise that Rose and Ashton embark on—carrying ultra-advanced biological products and agents—soon fatally intersects with Isobel's obsessions (for a clue to her mania, read her last name as "avian"), culminating in surprising disasters and partial redemptions.

Harrison's portraits of his interlocking trio are richly detailed and emphatically felt. Rose's voice is unwaveringly mature, weighted down with a sad knowledge. And yet an undercurrent of humor persists, in such spot-on aperçus as "She used the word 'transgressive' a lot." Harrison give us here a por-

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trait of the slippery slope of ethics which can tempt any of us, offering dilemmas "too modern to understand."

One Uchronia, With Lemurs

How pleasant to see a trilogy escape the seeming confines—however splendid—of its initial volume and truly blossom into something unpredictable by its end. Such was my recent enjoyable experience with "The Madagascar Manifesto" by Janet Berliner and George Guthridge.

When I reviewed the first volume in this series, *Child of the Light* (1996), I compared it to the masterpieces of Italian neo-realistic cinema that dealt with WWII and its aftermath, with a layer of the fantastic interwoven. However, volume two, *Child of the Journey* (White Wolf, mass-market, $5.99, 471 pages), resembles in its gritty verisimilitude more a Lina Wertmuller spectacle of degradation and inhumanity, while the concluding book, *Children of the Dusk* (White Wolf, mass-market, $5.99, 447 pages), ventures into some really strange Conrad-Ballard territory. Taken together, the trilogy moves ingeniously from the personal to the political to the personal again, forsaking the center of the global maelstrom for a murky yet fascinating backwater.

At the heart of the latter volumes remain the trio of childhood friends: Miriam Rathenauer, Erich Alois, and Solomon Freund. As Germany spirals into madness, circa 1939, Erich, the K-9 corpsman psychically bonded to his dogs, has become an influential Nazi and taken Miriam away from her true love, Solomon, who has landed in the Sachsenhausen concentration camp, along with a new character, the young orphan boy Misha. As Solomon's privations force new prophetic visions upon him, Miriam plots to rescue him, and Erich undergoes his own crises of conscience.

Rescue awaits in the most unlikely scheme: in a development based on actual aborted plans from our timeline, Hitler decides to try to develop the island of Madagascar as a Jewish "homeland." At the end of *Child of the Journey*, the entire main cast has set off on this insane mission, along with an enigmatic native, Bruqah. *Children of the Dusk* is devoted to the supernatural disintegration of the mission in the manner of *Lord of the Flies* (1954), and its potential for new beginnings.

Berliner and Guthridge plumb the psychological depths of Nazism, the mystical glories of the Kaballah, and the arrogancies of Western colonialism with subtlety and craft. Their "Manifesto" is a blueprint for a world different from ours on the surface, yet utterly congruent beneath.

Double Nickels on the Dime

In the true spirit of a punk band ripping through ten songs in fifteen minutes, I will now attempt to review seven worthy books in as many column-inches. Stand back.

Combine scathing drawings—

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done in a style similar to Leo and Diane Dillon's fused with Keith Haring's—and a prose-poem rant *à la* Ginsberg, and you have Paul Klem's *The Heart of Progress* (Black Crow Books, chapbook, $11.00, 60 pages). A rip-snorting critique of modern civilization that segues into a portrayal of a dystopian future, Klem's work takes all our faith in capitalism and technology and runs it through the meat-grinder of poverty, exploitation, and ecological disaster. "We are Big Brother watching Ourselves," says Klem, hoping you're listening and will act.

"Rita is lying in bed one night when she realizes she's lost her uterus." So begins *Ex Utero* (Harcourt Brace, trade, $11.00, 186 pages) by Laurie Foos. If Will Self and Kathy Acker had a slightly meeker love child, it would be Foos. With deadpan clarity, Foos skewers feminists and chauvinists alike, addressing a culture where the mall and television are the secular and sacred poles of our life. Will Rita get her womb back? Will Adele's Barbie-doll vacant crotch heal itself? Will Lucy find a new dog after inadvertently smothering her old one with torrents of blood? Read *Ex Utero* and find out.

Chances are you've seen the science-centered cartoons of S. Harris, with their wacked researchers and soft-boiled eggheads. If you would like to read a book-length work in this exact vein, try Robert Epstein's *Irrelativity* (Astrion Publishing, trade, $16.95, 156 pages). More a mock essay or stand-up monologue than an actual story, Epstein's book tells of the researches of U.T. Zalna, an unsung prophet in our time whose silly fast food-inspired theories will form the basis for the next century's highly irregular physics.

Phyllis Eisenstein deserves kudos twice over: first for teaching her students at Columbia College Chicago how to write some mighty fine SF, and again for assembling these fictions into an attractive anthology issued by the school. *SpecLit* (trade, $6.95, 175 pages) is as strong and enjoyable a read as the average issue of any prozine. The tales herein exhibit diversity and intelligence, ranging from Spinradian, Pohlesque satires to Philip K. Dick-style reality trips. Try this one now, and you'll be investing in the future of SF.

Russell Kirk's admirably restrained supernatural thriller *The Lord of the Hollow Dark* (1979) now has a worthy successor in Thomas Kennedy's *The Book of Angels* (Wordcraft, trade, $12.95, 233 pages). In this tale of writer Michael Lynch's battle to save his family from the depredations of a coven of diabolical arcane dabblers, Kennedy conjures up comparisons with Robert Holdstock, Lucius Shepard, and David Lynch, earning his shivers honestly.

Henry Miller with a blacker cosmology, Lovecraft in grungy leathers, Ellison born two generations later: these are some possible descriptions of Rob Hardin, musician, writer, and aficionado of angry despair. In his new collection,

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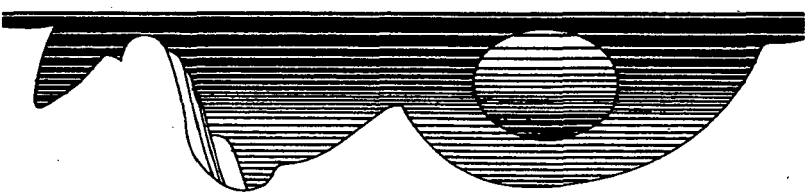
Distorture (Black Ice Books, trade, $9.00, 206 pages), Hardin presents fantastical stories that range from the formalistically experimental ("Dressed to Kill Yourself") to the conventionally surfaced yet philosophically deranged ("Vein of Grace," "An Inquiry into Subjective Evolution") to the essayistic ("Syntax for Surgeons"). Metaphorically speaking, in a coldwater flat in the East Village, Mr. Hyde mates with the Bride of Frankenstein, who gives birth to the Four Horsemen of the Apocalypse. Be there or be Jell-O.

John Shirley has written the best novel of his career. Mature yet youthfully indignant, spiritually insightful yet carnally streetwise, his new book is aboil with ideas and action, full of keen-eyed speculations for the future and daring revisions of history. *Silicon Embrace* (Mark Ziesing Books, hardcover, $29.95, 282 pages) is a hypertrophied fusion of Patricia Anthony's *Brother Termite* (1993) and Algis Budrys's *Some Will Not Die* (1961), and reads like Sun Ra jamming with George Clinton and the entire P-Funk band. Set a few years into the next century, amidst global chaos that includes a US Civil War, *Silicon Embrace* posits our globe as a battlefield in the long-running secret war between the Zetans—those traditional Grey aliens—and the Meta, an incorporeal, dimension-crossing beneficent entity. Shirley propels his cast of averagely unique humans and one land-octopus (don't ask, just read the book) in true PKD style through hell to nirvana, and dares to ignite a brighter dawn for this sorry world. Brilliantly recursive, Shirley's book alludes to dozens of classic works, even presciently including unreleased movies—*Men In Black*, *The Fifth Element*—he could not yet have seen when writing! But that's just what happens when a plugged-in author's "real year" (to use the Clute terminology) is so contemporary.

Publisher addresses: Black Crow Books, POB 414, Station E, Toronto, ON M6H 4E3, Canada. Astrion Publishing, POB 783, Champlain, NY 12919. Columbia College Chicago, 600 S. Michigan Ave., Chicago, IL 60605. Wordcraft, POB 3235, La Grande, OR 97850. Black Ice Books, Unit for Contemporary Literature, Campus Box 4241, Illinois State University, Normal, IL 61790. Mark Ziesing Books, POB 76, Shingletown, CA 96088. ●



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SF CONVENTIONAL CALENDAR

As the holidays end, the winter con(vention)s start. Plan now for social weekends with your favorite SF authors, editors, artists, and fellow fans. For an explanation of cons, a sample of SF folksongs, and info on fanzines and clubs, and how to get a later, longer list of cons, send me an SASE (self-addressed, stamped #10 [business] envelope) at 13107B Autumn Wood Way, Fairfax VA 22033. The hot line is (703) 449-1276. If a machine answers (with a list of the week's cons) leave a message and I'll call back on my nickel. When writing cons, send an SASE. For free listings, tell me of your con 6 months out. Look for me at cons as Filthy Pierre, with a musical keyboard. — Erwin S. Strauss

JANUARY 1998

2-4—EveCon. For info, write: **1607 Thomas Rd., Friendly MD 20744.** Or phone: **(301) 292-5231** (10 AM to 10 PM, not collect). Con will be held in: Frederick MD (if city omitted, same as in address) at the Holidome at Francis Scott Key Mall. Guests will include: none. "The Year's First & Friendliest Con!" A low-key relaxacon.

2-5—Shinnenkai. (E-mail) shennenkai@hpsound.demon.co.uk. Radisson Edwardian, London. For anime fans.

9-11—Trek Celebration, 13109 W. 88 St. Ct. #62, Lenexa KS 66215. (913) 894-8735. St. Louis MO. M. Sirtis, Dorn.

10-11—Creation, 411 N. Central Ave. #300, Glendale CA 91203. (818) 409-0960. New Yorker Hotel, New York NY.

16-18—Arisia, 1 Kendall Square, Cambridge MA 02139. Westin, Waltham MA. J.P. Hogan, Cortney Skinner.

16-18—AnaConism, Box 21766, Denver CO 80221. (303) 426-1847. Sheraton, Lakewood CO. Joe Haldeman.

16-18—ChattaCon, Box 23908, Chattanooga TN 37422. (770) 578-8461. Clarion. Vance, Waldrop, Bisson, Grant.

16-18—ConFurence, Box 1958, Garden Grove CA 92642. (E-mail) sylys@netcom.com. Buena Park (CA) Hotel.

16-18—Creation, 411 N. Central Ave. #300, Glendale CA 91203. (818) 409-0960. Hilton, Burbank CA. Media event.

16-18—RustyCon, Box 84291, Seattle WA 98124. (206) 743-5894. (E-mail) rustcon@mail.rdwarf.com.

23-25—ConFusion, Box 8284, Ann Arbor MI 48107. Van Dyke Park Suites, Warren MI. Willis, Minsky, Wessels.

FEBRUARY 1998

6-8—Decadence, 11 Evesham Rd., Cheltenham GL52 2AA, UK. Albany Hotel, Eastbourne. V. Housden, M. Clapp.

13-15—Boskone, Box 809, Framingham MA 01701. (617) 625-6311. Sheraton Tara. W.J. Williams, O. Rayyan.

13-15—FanimeCon, Box 8068, San Jose CA 95155. (E-mail) info@fanime.com. Foothills College, Los Altos CA.

13-15—Gallifrey, Box 3021, N. Hollywood CA 91609. (818) 752-9656. Airtel, Van Nuys CA. C. Baker, Straczynski.

13-15—Multiverse, Box 355, WTC, Melbourne VIC 3005, Australia. (041) 856-1701. Edmund Barton Center.

13-15—RadCon, 2527 W. Kinnewick Av. #162, Kennewick WA 99336. (509) 967-3248. J. Oltion, R. Campbell, D. Ing.

AUGUST 1998

5-9—BucCONeer, Box 314, Annapolis Junction MD 20701. Inner Harbor, Baltimore MD. WorldCon. About $125.

SEPTEMBER 1999

2-6—AussieCon 3, Box 266, Prospect Heights IL 60070. Melbourne Australia. G. Turner, Benford. The WorldCon.

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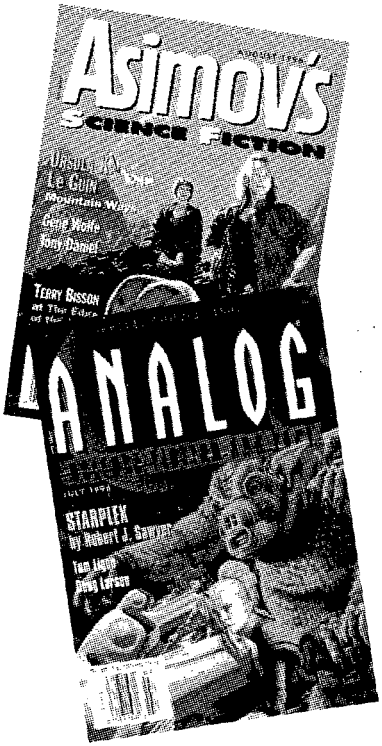

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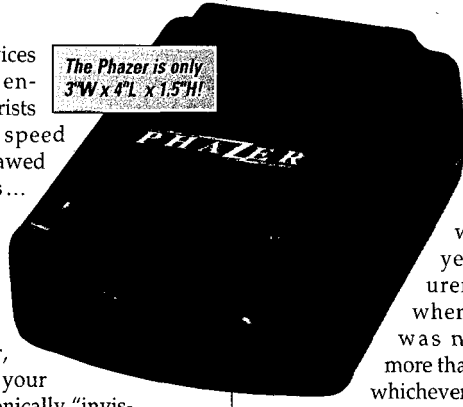
How to make your car invisible to radar and laser...*legally!*

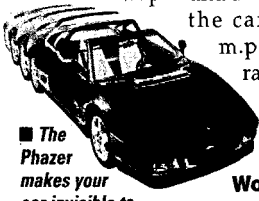
Rocky Mountain Radar introduces a device guaranteed to make your car electronically "invisible" to speed traps—if you get a ticket while using the product, the manufacturer will pay your fine!



Although devices exist that enable motorists to detect police speed traps, they're outlawed in many states... including mine.

The solution. Combining a passive radar scrambler with an active laser scrambler, the Phazer makes your automobile electronically "invisible" to speed-detecting equipment. And unless you live in Minnesota, Oklahoma or Washington, D.C., the Phazer is legal!

Scrambles radar. Police radar takes five to 10 speed measurements in about one second. The Phazer sends one signal that tells the police radar the car is going 15 m.p.h. and another signal that the car is going 312 m.p.h. Because the radar can't verify the speed, it displays no speed at all.



■ *The Phazer makes your car invisible to police radar and lasers or the manufacturer will pay your speeding ticket!*

Works with laser, too! The Phazer also protects you from Lidar guns that use the change in distance over time to detect a vehicle's speed. The Phazer fires invisible infrared pulses through the windshield. Laser guns interpret those pulses as a false indication of the car's distance, blocking speed measurement.

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